Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Service Rules for the 698-746, 747-762 and 777-792 MHz Bands	)	WT Docket No. 06-150
	)	
Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems	)	CC Docket No. 94-102
	)	
Section 68.4(a) of the Commission's Rules Governing Hearing Aid-Compatible Telephones	)	WT Docket No. 01-309
	)	
Biennial Regulatory Review – Amendment of Parts 1, 22, 24, 27, and 90 to Streamline and Harmonize Various Rules Affecting Wireless Radio Services	)	WT Docket No. 03-264
	)	
Former Nextel Communications, Inc. Upper 700 MHz Guard Band Licenses and Revisions to Part 27 of the Commission's Rules	)	WT Docket No. 06-169
	)	
Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band	)	PS Docket No. 06-229
	)	
Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010	)	WT Docket No. 96-86

COMMENTS OF VERIZON WIRELESS

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COMMENTS OF VERIZON WIRELESS

I. SUMMARY

In adopting a band plan and service rules for the 700 MHz band,[1] the Commission has an

[1] *See Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, Report and Order and Further Notice of Proposed Rulemaking, FCC 07-72 (Apr. 27, 2007) ("*Report & Order*" or "*Further Notice*") (seeking comment on a band plan and service rules for the 700 MHz Band);

opportunity to lay the groundwork for transformational change in commercial and Public Safety wireless broadband communications. In a world of finite spectrum resources, making new spectrum available to meet commercial and Public Safety needs is generally an "either/or" proposition. But by considering the 700 MHz band as a whole, the Commission has a rare opportunity to simultaneously achieve multiple public interest goals, including facilitating the deployment of 4G wireless broadband networks, advancing Public Safety communications, and creating opportunities for small businesses and rural companies.

Adopt Band Proposal 3 to Promote Broadband And Provide a Mix of Licenses. The Commission's Upper Band "Proposal 3" (Figure 8 in the *Further Notice)* seizes this generational opportunity. Proposal 3 provides for a large, "broadband-friendly" block of paired spectrum – 22 MHz in total – that is critical to the provision of next generation broadband networks. The Commission should license the Upper Block spectrum on a REAG basis to jump-start 4G deployment. This band plan also provides spectrum for other commercial and Public Safety communications while shifting guard bands to address Public Safety's Canadian border interference concerns.

Taken together, Upper Band Proposal 3 and the existing Lower Band plan provide a diverse mix of geographic license sizes – including CMAs, EAs and REAGs – and large and small spectrum blocks, creating opportunities for small businesses and rural companies. The Commission would auction over 900 licenses and provide up to five new licensees for every community. REAG licenses in the Upper Band would also provide the most suitable spectrum

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Service Rules for the 698-806 MHz Band and Revision of the Commission's Rules Regarding Enhanced 911 Emergency Calling Systems, Hearing Aid-Compatible Telephones, and Public Safety Spectrum Requirements, 72 Fed. Reg. 24,238 (May 2, 2007) (Proposed rule, summary, and request for comments).

blocks for an efficient public-private partnership, in which Public Safety can seek competitive bids from commercial entities to assist it in constructing an interoperable broadband network. No other proposal so elegantly accommodates as many of the Commission's goals.

Adopt Population-Based Performance Rules. This approach would also advance the Commission's broadband goals. Progress on such benchmarks should be tracked at a reasonable interval – five years after auction winners receive their licenses – to allow completion of the 4G standards process and avoid delays in deployment of state-of-the-art mobile broadband technologies. Failure to meet the benchmarks would result in a shortened license term and, then, loss of all unserved area. Onerous geographic build out requirements, by contrast, should be rejected as a return to failed command-and-control policies that would waste capital, reduce auction revenue, and lead to skeletal build out for license preservation rather than long-term investment in 4G networks. The proposed geographic-based rules would be unwarranted and thus unlawful regulation, disserve the very goals they seek to achieve, and promote gaming in place of building.[2]

Adopt Auction Rules to Maximize Auction Competition and Revenues. The 700 MHz auction rules should promote rigorous competition in the auction so that the full value of the spectrum is reaped for the public's benefit and the spectrum is put to its highest and best use. The rules should encourage maximum participation by qualified entities. To achieve these goals, the Commission should take three steps: *First,* it should reject unfounded proposals to restrict eligibility, which would disqualify entities with a proven track record of capital investment, network quality, job creation, customer service, and innovation in providing wireless services.

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[2] Attached to these comments is an analysis written by Thomas W. Hazlett, Professor of Law and Economics at George Mason University, who addresses the harmful economic impact of rigid geographic build out rules, as well as the harms from other FCC proposals under consideration.

Second, it should require anonymous bidding to minimize the risk of bid signaling and retaliatory bidding. *Third,* it should use a traditional Simultaneous Multi-Round ("SMR") auction design and avoid the complications that would arise from conducting multiple auctions or from experimenting with a hybrid SMR-Package Bidding ("PB") auction. Using combinatorial bidding for some but not all licenses would create immense implementation issues with which the Commission has never grappled, disrupt efficient bidding, and distort the auction.[3]

Promote Viable Public Safety-Commercial Partnerships But Reject Elements of Frontline Proposal Unrelated to Benefiting Public Safety. The 700 MHz proceedings provide a unique opportunity to place Public Safety on a new path toward advanced, interoperable broadband communications. The Public Safety 8th & 9th NPRMs[4] provide a road map for achieving this objective by establishing a new framework for licensing and building a national Public Safety broadband network. Action on the 8th NPRM's proposal to consolidate the Public Safety broadband channels and the 9th NPRM's proposal for a single, nationwide license controlled by a Public Safety entity would hasten interoperability considerably. In its response to the 9th NPRM, Verizon Wireless supported a Request for Proposal ("RFP") process to establish partnerships between commercial operators and the Public Safety community. Under such a process, Public Safety could specify its requirements and solicit competitive responses from all of the 700 MHz commercial auction winners, as well as any other party interested in

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[3] Attached to these comments is a declaration from Karen M. Wrege, an expert on the Commission's spectrum auctions procedures, which documents the problems with taking a hybrid SMR/package bidding approach to the auction.

[4] *The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Commc'ns Requirements Through the Year 2010*, Eighth Notice of Proposed Rulemaking, 21 FCC Rcd 3668 (2006) ("*Public Safety 8th NPRM*"); *Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band*, Ninth Notice of Proposed Rulemaking, 21 FCC Rcd 14,837 (2006) ("*Public Safety 9th NPRM*").

partnering with Public Safety. We continue to believe that such a framework would enable Public Safety to deploy a network that benefits from wireless technology and the substantial cost savings and accelerated deployment that can result from an effective private-public partnership.

The proposal submitted by Frontline Wireless, however, would not provide such a partnership. Any proposal to achieve broadband communications for first responders should be judged against three core principles: (1) The proposal must focus exclusively on achieving Public Safety's and the taxpayers' objectives, rather than trying to accomplish unrelated agendas (such as "open access" and "net neutrality," or otherwise advancing the financial interests of a particular set of entrepreneurs) under the guise of "helping" Public Safety; (2) Public Safety's spectrum and its networks should be free of encroachment and interference from commercial users; and (3) Public Safety must have the discretion to determine whether it wants a commercial partner or partners, and if it does, it must be allowed maximum flexibility in determining how to select a partner or partners based on who can best fulfill Public Safety's unique requirements.

The Frontline proposal fails all three of these core principles. It asks the Commission to burden 10 MHz of spectrum with extensive license conditions, dictating every aspect of how a prospective licensee would provide service – including "open access," a wholesale-only requirement, and mandatory roaming. These conditions are nothing more than "poison pills" that tailor license requirements so closely to the business plan of a single company – Frontline – that other bidders will be foreclosed from bidding. Weighing down the adjacent licensee with the poison pill conditions Frontline seeks would drive down the value of the spectrum, as no rational existing license holder would accept the poison pill's impact on existing licenses. The spectrum will sell at an enormous discount, resulting in a huge spectrum windfall for the winner and a loss for the taxpayers. Frontline's conditions have nothing to do with accomplishing

Public Safety's or the taxpayer's objectives, but everything to do with advantaging a single company, and should be rejected as unwise as well as unlawful under Section 309 of the Act.

Frontline's proposal fails the second principle as well because it includes a right of access to Public Safety's spectrum by the commercial licensee of the adjacent block. Unlike a post-auction competitive process where Public Safety would be able to negotiate competitive terms with 700 MHz licensees or other entities, Section 337 of the Communications Act precludes the Commission from granting commercial entities the right to use Public Safety spectrum. Granting Frontline or any other party such a right would violate the core statutory and policy principles that Public Safety spectrum and Public Safety networks should be free of encroachment and interference from commercial users. The threat of encroachment and interference is compounded by Frontline's "open access" requirements, which pose grave risks to Public Safety's operations on a shared network spanning the spectral boundary.

Frontline's proposal also fails the third principle. By foreclosing the benefits of a competitive RFP process for Public Safety, instead forcing it into a "shotgun marriage" with whatever entity wins the adjacent block, it would prevent Public Safety from seeking the best partner through a competitive RFP process, and would seriously harm the broader public interest. Were a Frontline-type proposal adopted by the Defense Department to procure a new jet fighter, existing defense contractors would be precluded from bidding; the process would be skewed in favor of start-up entities with little or no expertise. The results would be disastrous. Pilots deserve better when the Government procures the new planes they will fly, and first responders deserve better when they procure the communications network they will use.

We continue to believe that a post-auction RFP process is the best way to ensure that Public Safety has the most control over the formation of a private-public partnership and

competitive responses that will ensure Public Safety gets the most qualified partner to meet its needs. However, if the Commission elects to proceed with a "conditioned license" approach, it will need to work with Public Safety to determine their specific requirements in advance of an auction. Indeed, Section 309(j) of the Communications Act requires such transparency to afford prospective bidders sufficient information to develop their business plans. No bidder can have the requisite certainty as to what its rights and obligations will be in the absence of clear terms and conditions that detail how to accommodate Public Safety's needs while running a viable business. Moreover, such transparency will be of tremendous benefit to Public Safety. By discarding the anti-competitive poison pill restrictions Frontline advocates, and instead laying out in advance the terms and conditions for a public-private partnership, the Commission would promote, rather than retard, vigorous competitive bidding for the adjacent block, and will ensure that the commercial entity that wins it is ready, willing and able to meet Public Safety's requirements.

II. THE COMMISSION SHOULD ADOPT A BAND PLAN THAT FACILITATES WIRELESS BROADBAND DEVELOPMENT

In adopting a 700 MHz band plan, the FCC has a rare opportunity to simultaneously advance a number of important policy objectives. The Commission has announced its intention to include in the band plan licenses of varying sizes broken up into different geographic areas for the purpose of meeting diverse needs in terms of different applicants, different business plans and different technologies. The right band plan will offer opportunities to small and large companies, and provide the spectrum needed to advance Public Safety interoperability and deployment of next generation wireless broadband systems. But only if it is done correctly.

To seize the opportunity that the 700 MHz spectrum – both the Lower and Upper bands – presents for transformational advances in the U.S. broadband market, the overall plan must

include a significantly-sized block of broadband-friendly spectrum. Specifically, the plan should include a 20 MHz or larger paired block licensed on an REAG basis. Including such a spectrum block in the band plan will help to ensure the near-term deployment of next generation wireless broadband networks, providing the best opportunity for the United States to lead the world in 4G wireless development.

As further discussed below, the Commission's best opportunity to advance its broadband objectives in parallel with its other stated policy goals is to adopt Band Plan "Proposal 3." When combined with the Commission's Lower 700 MHz band plan proposal, only Proposal 3 provides the diversity of license sizes the Commission seeks. CMAs and EAs in the lower band will afford opportunities for small entrants and rural providers. Public Safety communications needs are further addressed, including the possibility of access to additional spectrum through a public-private partnership. In addition, Proposal 3 provides for 22 MHz of spectrum to be licensed on a REAG basis which will significantly advance deployment and delivery of next generation wireless broadband services. No other band plan accommodates the Commission's multiple policy objectives as well as Proposal 3.

A. In Developing a Balanced Band Plan, the FCC Must Consider the Entire 700 MHz Band

In attempting to achieve its public policy objectives, it is important to consider that the Commission has provided a total of 84 MHz of commercial 700 MHz spectrum, including 18 MHz of commercial spectrum in the Lower 700 MHz band and 6 MHz in the Upper 700 MHz band that it has already auctioned. There is a tendency in this proceeding to minimize the value of the Lower 700 MHz band and to instead focus detailed analysis on the Upper 700 MHz band in isolation. In reality, the Lower 700 MHz band offers a total of 24 MHz of un-auctioned paired spectrum well suited for commercial broadband applications. While the Upper 700 MHz band

has more commercial spectrum available for auction (30-32 MHz depending on the disposition of the previously auctioned 700 MHz commercial guard band spectrum) there is nothing inherently more valuable about that spectrum in contrast to the Lower 700 MHz spectrum, particularly since the *Report and Order* modified the technical rules for the lower band to facilitate its use for mobile wireless networks. Therefore, in ensuring that the Commission satisfies its adopted objective of providing a mix of geographical service areas and spectrum block sizes, the Commission must view the total allocation picture and consider its actions in the Lower 700 MHz band and the Upper 700 MHz band as a whole.

B. To Enable Next Generation Wireless Broadband Services, The Upper 700 MHz Band Plan Should Be Licensed On A REAG Basis, Including One 20 MHz Or Larger Paired Block License

The Digital Television transition provides a generational opportunity to advance the deployment of next generation mobile broadband networks. The transition makes available spectrum with excellent propagation characteristics in a prime frequency range. A band plan hospitable to national deployment of broadband technologies would allow carriers to focus on build out rather than spectrum acquisition, and accelerate delivery of service to the public. The Commission should adopt a band plan that avoids rather than creates the significant transaction costs associated with aggregating PCS and cellular licenses. The record shows that this aggregation was extremely costly to the industry and to consumers in terms of delays in providing low-cost, high-quality mobile services.[5] Consistent with the objective of making next

[5] *See* Peter Cramton, Why Large Licenses Are Best for the 700 MHz Spectrum Auction, Attached to Letter from Charla M. Rath, Verizon Wireless, to Marlene H. Dortch, FCC, WT Docket No. 06-150, 2-6 (Apr. 17, 2007) ("Cramton Paper") (noting that service to consumers benefited from lower prices and nationwide access only after the spectrum has been aggregated in the secondary market).

generation wireless networks a near-term reality, the FCC should license on a REAG basis two paired blocks, one at least 20 MHz, in the 700 MHz Upper Band.

The Commission has clearly stated its policy objectives in adopting a 700 MHz band plan: promote broadband deployment and make a variety of license sizes available. Under Section 309(j)(4) of the Communications Act, the Commission has a statutory obligation to allocate spectrum in a manner that will promote investment in, and rapid deployment of, new technologies and services.[6] Further, Section 706(a) directs the Commission to "encourage the deployment . . . of advanced telecommunications capability to all Americans" "on a reasonable and timely basis."[7] Indeed, "[e]very member of this Commission has voiced the need for ubiquitous, affordable broadband, and Members of Congress have clearly indicated their belief that the FCC must do more to get broadband services deployed to all Americans."[8]

With respect to license sizes, the Commission has observed, "a mix of geographic licensing areas in the 700 MHz Band will balance the demand for differently sized licenses demonstrated in the record and enhance access to this spectrum by a variety of potential licensees."[9] Moreover, it will ensure that the Commission satisfies its statutory obligation to "equitabl[y] distribut[e] . . . licenses and services among geographic areas."[10] And REAG

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6 47 U.S.C. § 309(j)(4) ("In prescribing regulations pursuant to paragraph (3), the Commission shall—(C) consistent with the public interest, convenience, and necessity, the purposes of this Chapter, and the characteristics of the proposed service, prescribe area designations and bandwidth assignments that promote…investment in and rapid deployment of new technologies and services").

7 Telecomms. Act of 1996, Public Law 104-104, § 706 (as amended).

8 *Report & Order*, at 168, Statement of Comm'r Debora Taylor Tate.

9 *Report & Order*, ¶ 42.

10 47 U.S.C. § 309(j)(4)(c)(i).

licenses, in particular, will ensure that the Commission can satisfy one of its highest priorities: "encourag[ing] the deployment . . . of advanced telecommunications capability to all Americans" "on a reasonable and timely basis."[11] Indeed, given the plan to devote all of the paired spectrum in the Lower Band to smaller licenses, using REAGs in the Upper Band is necessary to achieve the stated goal of a mix of licenses.

The objectives of advancing broadband deployment and creating a well-conceived license plan are interdependent. Adoption of the right license size will create significant efficiencies and hasten broadband deployment considerably. But the opposite is also true – adoption of the wrong license size will inhibit, rather than promote, broadband deployment. To achieve the optimum band plan, the Commission should consider the amount of spectrum to be licensed, whether it is paired or unpaired, and the geographic license size.

First, wireless broadband deployment requires more contiguous spectrum, and emerging 4G technologies require 20 MHz of spectrum to achieve the fastest possible data rates. As Qualcomm has also noted, "both the CDMA2000 and the WCDMA/HSPA technology roadmaps include technologies that will utilize, *indeed require*, a 20 MHz bandwidth to achieve the fastest possible data transmissions . . . . The public interest lies in allowing the deployment of these technologies and, therefore, the retention of the 20 MHz block in the 700 MHz band plan."[12] Potential new entrants have gone further, arguing that "given the expected growth in bandwidth-hungry applications, [even] 20 MHz may not be sufficient for such services."[13] Commissioner

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[11] Pub. Law No. 104-104 § 706(a).

[12] Comments of Qualcomm Inc., WT Docket No. 06-150, 18 (Sept. 29, 2006) (emphasis added) ("Qualcomm Comments").

[13] Joint Comments of DIRECTV, Inc. and EchoStar Satellite, LLC, WT Docket No. 06-150, 12 (Sept. 29, 2006); *see also* Comments of CTIA, WT Docket No. 06-150, 7 (Sept. 29, 2006) ("[l]icenses of 20 MHz provide important opportunities that can support wireless broadband and

Adelstein, too, has noted the importance of large spectrum blocks in promoting broadband deployment, stating that a "22 MHz block available on a REAG basis could address the needs of potential new entrants, some of whom argue that they need the ability to create a large swath of spectrum to compete with a wireless broadband product on a national basis."[14]

Second, for licensees to deploy proven wireless broadband technologies in the near-term, the spectrum must be paired. As the Commission has recognized, paired – rather than unpaired – spectrum provides the best opportunity to deploy advanced broadband services.[15] Next generation mobile broadband technologies such as LTE[16] and UMB[17] – broadband technologies that will maximize compatibility with existing wireless networks – are frequency division duplex platforms that require paired spectrum allocations. The Lower Band unpaired spectrum is far better suited for the delivery of one-way broadcast type services – such as Qualcomm's MediaFLO[18] – than for near term wireless broadband deployment using proven technologies.[19]

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the entry of new or emerging competitors in the marketplace.").

[14] *Report & Order*, at 165, Statement of Comm'r Jonathan Adelstein.

[15] *Reallocation and Service Rules for the 698-746 MHz Spectrum Band (Television Channels 52-59)*, Report and Order, 17 FCC Rcd 1022, 1056 (¶ 82) (2002) ("Paired 12-megahertz blocks are also sufficient to accommodate a single wideband CDMA channel, which can support a range of broadband services."); *see also Report & Order*, at 165, Statement of Comm'r Jonathan Adelstein (indicating support for "a *paired* 22 MHz block available on a REAG basis") (emphasis added).

[16] Long Term Evolution, or LTE, is the name given to efforts within the Third Generation Partnership Project to establish next generation enhancements to the UMTS mobile broadband standard. *See* http://www.3gpp.org/Highlights/LTE/LTE.htm.

[17] Ultra Mobile Broadband, or UMB, represents the next generation enhancements to the cdma2000 mobile broadband standard as developed within the Third Generation Partnership Project 2. *See* http://www.3gpp2.org/.

[18] *See* Qualcomm Comments, 4 (describing how the Lower 700 MHz spectrum is suitable for Qualcomm's one-way MediaFLO service). According to Qualcomm, MediaFLO is a "one-

Indeed, while time division duplex (TDD) wireless broadband technologies have had some limited deployments in the United States, to date there have been no national commercial deployments of wireless broadband service in unpaired bands.

Third, the Commission repeatedly has noted the benefits of REAG licenses in promoting nationwide deployment of new technologies.[20] In the Upper 700 MHz Order, for example, the FCC noted that "large geographic areas would readily allow aggregation into a nationwide service area and would enable multiple parties to bid on this spectrum for the provision of high-speed wireless data services."[21] And in the FCC's instant *Report and Order,* Chairman Martin noted that the Commission must allocate spectrum on a large geographic basis so that the

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way 'mediacast' network." *Id*.

[19] *Qualcomm Inc. Petition for Declaratory Ruling*, Order, 21 FCC Rcd 11,683, 11,684 (¶ 2) (2006) ("Unlike the commercial spectrum in the Upper 700 MHz Band, the Commission established multiple Lower 700 MHz Band blocks based on units of 6 megahertz given the support in the record from" broadcast interests and time-division-duplex (TDD) advocates).

[20] The Commission has long recognized the overall advantages of larger-sized areas for the 700 MHz band. *See Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Comm'ns Rules*, First Report and Order, 15 FCC Rcd 476, 501 (¶ 59) (2000) ("[W]e have ruled out MEAs or EAs recognizing the overall advantages of larger-sized areas for this band."); *see also Service Rules for the 698-746, 747-762 and 777-792 MHz Bands; Revision of the Comm'ns Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Sys.; Section 68.4(a) of the Comm'ns Rules Governing Hearing Aid-Compatible Tels.*, Notice of Proposed Rulemaking, Fourth Further Notice of Proposed Rule Making, and Second Further Notice of Proposed Rule Making, 21 FCC Rcd 9345, 9355 (¶ 15) (2006) ("*Service Rules NPRM*") ("[T]he advantages of EAGs include: (1) providing optimum opportunity to aggregate spectrum, which may be particularly useful for services that require nationwide footprints; (2) making it easier for providers to take advantage of economies of scale, allowing existing technologies to grow and new technologies to develop; [and] (3) reducing the potential transaction costs to both auction participants seeking adjoining smaller geographic areas and carriers seeking to consolidate such areas post-auction").

[21] *Id.*, 15 FCC Rcd at 501 (¶ 60). Qualcomm recently observed that the "economies of scale in the wireless industry continue to be quite strong, which argues in favor of the big geographic area licenses." Qualcomm Comments at 17.

Commission can help companies provide a national, wireless broadband network.[22] Indeed, "[w]hen areas are inefficiently small, the costs of aggregation during or after the auction in terms of delay and transaction costs may harm both service providers and customers alike."[23] This analysis is even more compelling now, several years later, when it is clear that the consumer benefits from nationwide or large regional services areas.[24] Further proof comes from the recent AWS auction in which the Commission auctioned nearly 45 percent of the available spectrum as REAGs.[25] The results of that auction show the wisdom of that approach.[26]

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[22] *See Report & Order* at 158, Statement of Chairman Kevin Martin ("The leading technology companies – Google, Intel, Skype, Yahoo, along with DirecTV, and EchoStar are the only parties that have promised to try to provide a national, wireless broadband alternative. They have explained that, for a national wireless broadband service to emerge, the auction must do three things: (1) make available at least one 11 MHz paired block; (2) offer at least some large geographic areas; and (3) enable package bidding so that rights to a national service could be acquired.").

[23] *Service Rules NPRM*, 21 FCC Rcd at 9372-73 (¶ 59). While the 700 MHz Lower Band includes a 6 MHz unpaired block licensed on an REAG basis, this block lacks key specifications essential to the provision of mobile broadband service in the near-term using proven technologies: it is only 6 MHz and it is unpaired. See also generally Cramton Paper (noting that large license areas reduce aggregation risk – the possibility that the bidder will have significant holes in its desired footprint – resulting in both auction efficiency and auction revenues and that when large license areas are not used, licensees often attempt to aggregate smaller license either at auction or through secondary markets, increasing the costs and time it takes to deploy service).

[24] *See* Cramton Paper at 1 ("Consumers have benefited enormously from intense competition for a nationwide product, which has improved the quality of wireless services and lowered the price paid for those services").

[25] *Service Rules for Advanced Wireless Services In the 1.7 GHz and 2.1 GHz Bands*, Order on Reconsideration, 20 FCC Rcd 14,058, 14069 (¶ 20) (2005) (modifying the AWS-1 band plan so that 40 MHz of the available 90 MHz would be licensed on an REAG basis).

[26] As noted by Peter Cramton in his recent white paper, demand for REAG licenses in the AWS auction greatly outstripped supply. *See* Cramton Paper at 8-13 (noting that a significant premium was paid for REAG licenses and that many licensees aggregated CMA and EA licenses into REAG licenses).

Fourth, when the Commission promulgated band plans and spectrum licenses for 800 MHz cellular, Broadband PCS and AWS licensing, more than one 20 megahertz block was provided for licensing in each service. For cellular, each license holder has access to 25 MHz of paired spectrum.[27] For Broadband PCS, there are three 30 MHz paired license blocks.[28] For AWS, there are three 20 MHz paired license blocks.[29] Similarly, the 700 MHz spectrum band, one on which the Commission is placing significant expectations for broadband, must have at least one license block of 20 MHz or more. Indeed, for the 700 MHz band plan to "approximate" the AWS band plan, one of the Commission's goals, it must include at least one paired license of at least 20 MHz. Otherwise, 700 MHz band licensees will be competitively disadvantaged relative to cellular, PCS, and AWS license holders who were able to readily access sufficient spectrum in a single block to provide broadband.

Accordingly, Verizon Wireless urges the Commission to adopt a band plan that licenses the Upper Band on a REAG basis and that includes a 20 MHz or larger block of paired spectrum. Such a block will allow for the provision of wireless broadband service using proven technologies on a near term basis. Moreover, licensing on an REAG basis will facilitate nationwide deployment and avoid the inefficiency – and economic loss to the Treasury and consumers – involved in rolling up smaller license areas to create a national footprint. Finally, such a band plan would be wholly consistent with past precedents for new commercial mobile service band plans, where there have always been multiple large license blocks.

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[27] 47 C.F.R. § 22.905.

[28] 47 C.F.R. § 24.229.

[29] 47 C.F.R. § 27.11(i).

C. Band Plan "Proposal 3" Promotes Broadband Deployment And Optimally Accommodates All Of The Commission's Commercial And Public Safety Goals

Verizon Wireless strongly encourages the Commission to adopt band plan Proposal 3, which simultaneously advances multiple Commission policy objectives. In combination with the existing band plan for the Lower 700 MHz, Proposal 3 is the only plan that achieves these goals:

- It makes available a mix of licenses sizes, creating opportunities for a variety of applicants, business plans and technologies, including small businesses and rural companies. More than 900 licenses would be available for auction.
- It addresses Public Safety interference issues along the Canadian border while minimizing the risk of increased interference among 700 MHz licensees.
- It provides adequate paired spectrum – 22 MHz – to support 4G broadband deployment.
- It provides for REAG licensing of the Upper Band, reducing transaction costs and promoting efficient regional and national roll-out of next generation wireless broadband. At the same time, almost the same amount of spectrum, 24 MHz, will be licensed in CMA and EA blocks in the Lower Band.

Under Proposal 3, the Commission would auction 32 MHz of commercial broadband spectrum in the Upper 700 MHz band but leave the size of the Public Safety allocation unchanged.[30] The band plan contemplates shifting the A Block Guard Bands primarily to improve the compatibility of the Public Safety allocation with Canadian assignments.[31] As described more fully below, we believe this shift can be undertaken without creating new interference to commercial users, because the C Block is increased in size – to 22 MHz – allowing for some of the spectrum to be used for an "internal guard band."[32]

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30 *Further Notice*, ¶¶ 195-99.

31 *Id.*, ¶ 195. This proposal would result in a 1 megahertz shift of the Public Safety allocation to 763-775/793-805 MHz in order to promote cross-border interoperability and to ensure that U.S. border areas would have some access to narrowband channels that would be free of potential interference from Canadian broadcast stations.

32 *Id.*, ¶ 196 ("In implementing the 'shift,' the current A Block at 746-747 MHz and 776-

As Verizon Wireless previously showed, there is a significant potential for high powered broadcast operations in the Lower 700 MHz C Block to cause harmful interference to low power mobile operations in the Upper 700 MHz C Block.[33] The current A Block Guard Band at 746 MHz provides a 1 MHz buffer to separate these disparate systems, reducing the potential for harmful interference. Previous proposals to modify the Guard Bands (*e.g.*, the Broadband Optimization Plan) eliminated this buffer, and thus, placed commercial mobile operations in the Upper C Block at risk of increased interference.

Proposal 3, which is based on a revised proposal from Access Spectrum, addresses this problem by increasing the size of the Upper C Block to 22 MHz (2 x 11 MHz). Verizon Wireless has already noted the importance of licensing at least one commercial block of 20 MHz or more. By licensing a larger 22 MHz C Block, sufficient spectrum would be available to allow the commercial licensee to designate a portion of the spectrum (*e.g.*, one megahertz) as an internal guard band to replace the buffer between the Lower and Upper 700 MHz bands that is lost with the shifting of the A Block Guard Band. As a result, Proposal 3 would enable the Commission to ensure that Public Safety has spectrum assignments that are aligned with Canadian allocations, while also ensuring that commercial licensees are not subject to increased interference.

Importantly, without the availability of additional spectrum that would be afforded by a larger C Block the commercial licensee would not be able to adequately address the interference

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777 MHz would be displaced and relocated, and the Upper 700 MHz C Block would become a 22-megahertz block (comprised of two 11-megahertz paired blocks) through redistribution of a total of 2 megahertz of current B Block spectrum.").

[33] Ex parte of Verizon Wireless, WT Docket No. 06-169 (Feb. 15, 2007) ("Feb. 15, 2007 Verizon Wireless Ex Parte").

risks that would be raised by the shifting of the A Block Guard Band. This flexibility would be undermined by Cyren Call's recent revised proposal,[34] which would reduce the bandwidth of the Upper 700 MHz C Block to 5 MHz. Such a proposal would expose the Upper 700 MHz C Block to increased interference risk from high-powered transmissions originating in the Lower 700 MHz C Block. The Commission should thus reject Cyren Call's latest proposal.

Proposal 3 would also reduce the risk of harmful interference to Public Safety licensees. Currently, there is a one megahertz guard band separating the upper portion of the Upper C Block from narrowband Public Safety operations. This Guard Band is designed to reduce the potential for commercial mobiles to interfere with Public Safety mobile receivers. Verizon Wireless has previously noted that the potential for "mobile-to-mobile" interference is of particular concern since there is no way to determine in advance where mobile devices will be at any given time.[35] Commercial operators and manufacturers have provided detailed analyses in other FCC proceedings describing the significant risk of interference when mobile devices are within close physical proximity and when there is little spectral separation of mobile transmit and receive bands. Proposal 3 would not only retain the one megahertz Guard Band that separates the commercial and Public Safety bands (though it is redesignated from Block A to Block B), it would also provide sufficient spectrum in the larger 22 MHz C Block to facilitate the use of an additional internal guard band, should that be necessary to provide adequate protection for Public Safety.

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[34] *See* Letter from Elizabeth R. Sachs, Counsel to Cyren Call Commc'ns Corp., to Marlene H. Dortch, FCC, PS Docket No. 06-229, RM-11348, WT Docket Nos. 06-150, 06-169, and 96-86, Attachment at 9 (May 14, 2007).

[35] Feb. 15, 2007 Verizon Wireless Ex Parte, 8.

Finally, while we agree that the Commission's plan to reconfigure the Public Safety spectrum reduces the need for a buffer to separate broadband Public Safety spectrum from the commercial spectrum, we remain concerned that unless Public Safety broadband systems are deployed in a manner that is compatible with commercial networks (namely, low-site, cellular architectures as opposed to the high-site, non-cellular architectures deployed by Public Safety today), there is still a significant risk of interference between Public Safety broadband networks and commercial operations in the Guard Bands.[36] Given Congress's mandate for the Commission to ensure that Public Safety licensees in the band "continue to operate free of interference from any new commercial licensees,"[37] we believe that the Commission should not grant broader flexibility in the use of the Guard Bands unless it can be assured that such uses will not interfere with the use of the broadband Public Safety spectrum.

III. THE COMMISSION SHOULD REJECT PROPOSALS TO RADICALLY RESTRUCTURE LICENSEE PERFORMANCE REQUIREMENTS

In the *Further Notice*, the Commission has proposed to radically alter the market-based framework it has used for many years for measuring licensee performance. As discussed herein, U.S. consumers in both urban and rural areas have benefited—and continue to benefit—from the existing policies that appropriately limit regulatory intervention. Verizon Wireless believes that no cause exists to revise this scheme. Adopting the *Further Notice*'s draconian plans would revive intrusive regulation the Commission previously rejected and discourage service to the public. As outlined in the attached economic analysis by Professor Thomas W. Hazlett,

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36 *Id*.

37 H.R. Conf. Rep. No. 105-217, 105th Cong., 1st Session, at 580 (1997).

geographic buildout mandates "would increase the cost of compliance, all else equal, and move away from a system driven by consumer demand to a more regulated system." [38]

A. U.S. Consumers Have Been Well-Served By the Commission's Existing Market-Based Approach to Performance Benchmarks and Spectrum Access

The Commission's market-based regulatory mechanisms for measuring licensee performance and providing access to spectrum are a model for successful and pro-competitive regulation. That success and Congressional encouragement[39] have spurred the agency to extend market-based policies in spectrum access, including minimizing transactional inefficiencies in spectrum sales and liberalizing spectrum leasing.[40] No market failure exists that warrants reversing these longstanding policies in favor of a more regulatory approach. As Professor Hazlett states, "This regulatory intervention is unjustified by market realities, and would impose significant costs on operators and consumers."[41]

U.S. consumers benefit when carriers compete vigorously based on coverage, quality and price, and it is clear that competition is vibrant in the mobile marketplace. The FCC's *11th Annual Competition Report* documents widespread and increasing wireless coverage[42] and rapid

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38 Thomas W. Hazlett, Regulatory Policy at 700 MHz: Competition, Auction Receipts, and Economic Welfare (May 23, 2007) ("Hazlett"), Attachment A at 1.

39 As the Commission has noted, "Congress amended the Act to reflect a 'general preference in favor of reliance on market forces rather than regulation.' Congress limited CMRS regulation to situations 'for which the Commission and the states could demonstrate a clear-cut need.'" *Implementation of Sections 3(n) and 332 of the Commc'ns Act*, Third Report and Order, 9 FCC Rcd 7988, 7994 (1993).

40 *See Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets*, Report and Order and Further Notice of Proposed Rulemaking, 18 FCC Rcd 20,604 (2003); Second Report and Order, Order on Reconsideration, and Second Further Notice of Proposed Rulemaking, 19 FCC Rcd 17,503 (2004).

41 Hazlett at 5.

42 *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993*;

deployment of new technologies.[43] The increase in the reach of wireless coverage is the result of heavy investment by licensees in network upgrades. The *Competition Report* cites an analyst estimate that the "wireless industry spent roughly $25 billion on capex in 2005, an increase of 18 percent from the $22 billion spent in 2004, which in turn was on top of a 12 percent increase from 2003."[44] The essential conclusions are: (i) carriers are spending substantial—and increasing—amounts on network equipment and (ii) when, where and how network investments are applied is a multidimensional challenge that directly impacts competition in the mobile marketplace. Simply put, capital investment decisions are integral to mobile competition.

For this reason, creating a regulatory structure that imposes a single dimension on network investment—sheer geographic scope of coverage—is antithetical to the Commission's market-based principles.[45] If a licensee's investment in a license is at risk due to geographic coverage requirements, the result will be to encourage inefficient capital investment based solely on license preservation. The result would be skeletal coverage at the expense of quality of service, capacity, and advanced technologies. According to Professor Hazlett, "An irrational use

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Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, Eleventh Report, 21 FCC Rcd 10,947, 10,994 (¶ 115) (2006) ("11th Annual Competition Report") ("[v]irtually the entire population of United States live in counties where operators offer digital mobile telephone service, using CDMA, TDMA/GSM, or iDEN (including their respective next generation technologies), or some combination of the three").

[43] *Id*., 21 FCC Rcd at 10,995 (¶ 117) (with respect to high speed EvDO and WCDMA/HSDPA, the report found—as of December 31, 2005—that "higher speed technologies . . . are available in counties containing 63 percent and 20 percent of the U.S. population, respectively.")

[44] *Id*., 21 FCC Rcd at 19,997 (¶ 124).

[45] *See* Letter from John T. Scott III, Vice President and Deputy General Counsel, Verizon Wireless, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 06-150 (Apr. 4, 2007) ("Verizon Wireless April 4, 2007 Ex Parte").

of resources results, where networks over-invest in rural geographic coverage while under-investing in service quality enhancements in urban, suburban, and exurban areas."[46]

B. The *Further Notice*'s Tentative Conclusions Regarding Performance Requirements Are an Abrupt and Unjustified Reversal of Prior Policies

The tentative conclusions in the *Further Notice* are an unjustified and radical about-face from years of consistent precedent relative to licensee build out.[47] Less than three years ago, the Commission looked at ways to promote service to rural areas, and considered, but rejected, just such rigid performance requirements. In the September 2004 order in that docket, the FCC declined to interfere with its market-based policies through re-licensing, stating, "We generally believe that by maintaining our flexible, relatively undefined use policy for geographic-area licensees as applicable, we can increase efficient access to and use of spectrum under our secondary markets initiatives that will permit spectrum (and access) to flow to those particular uses that consumers most demand."[48] That order also extended the use of "substantial service" performance requirements to services that previously used fixed requirements for population percentage, stating "modifying our rules to permit these additional licensees to satisfy their

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[46] Hazlett at 7.

[47] Through more than 50 auctions, the Commission has never required a geographic coverage construction benchmark. In fact, while the Commission initially adopted geographic coverage construction benchmarks for Narrowband PCS, in 2000 the Commission adopted a "substantial service" requirement as an alternative, finding that such option "may be very useful in allowing licensees to use spectrum flexibly to provide new and innovative services uninhibited by a requirement that they need a specific coverage benchmark or lose their license." *Amendment of the Comm'ns Rules to Establish New Personal Commc'ns Services, Narrowband PCS*, Second Report and Order and Second Further Notice of Proposed Rule Making, 15 FCC Rcd 10,456, 10,468-470 (¶¶ 23-26) (2000).

[48] *Facilitating the Provision of Spectrum-Based Services to Rural Areas and Promoting Opportunities for Rural Telephone Companies to Provide Spectrum-Based Services*, Report and Order and Further Notice of Proposed Rulemaking, 19 FCC Rcd 19,078, 19,120-22 (¶ 41) (2004) ("*Rural Report and Order*").

construction requirements by providing substantial service will increase their flexibility to develop rural-focused business plans and deploy spectrum-based services in more sparsely populated areas without being bound to concrete population or geographic coverage requirements."[49]

Less than three years after the *Rural Order*, the *Further Notice* now proposes to reverse course, despite further improving conditions in rural areas. Indeed, the barriers to entry in rural markets – particularly with respect to spectrum availability – have decreased significantly.[50] Similarly, nothing has changed in the past three years that would justify creating disparities between competing licensees in different spectrum bands.[51] Applicants granted new 700 MHz licenses, in fact, would have construction obligations different from those applying to previously auctioned 700 MHz licenses, as well as their own licenses in other bands.

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[49] *Id.*, 19 FCC Rcd at 19,121 (¶ 76).

[50] In 2004 when the Commission made its determination that rigid performance rules were not in the public interest, there was approximately 200 MHz of CMRS spectrum available, including 50 MHz of cellular spectrum, 120 MHz of PCS spectrum, approximately 15 MHz of SMR spectrum, and 18 MHz of 700 MHz reclaimed television spectrum. Since that time, the Commission has auctioned 90 MHz of AWS spectrum, licensed an additional 10 MHz in the PCS band, substantially rewritten the rules for 190 MHz of BRS/EBS spectrum, and is now about to auction 60 MHz of 700 MHz reclaimed television spectrum.

[51] In the *Rural Report and Order*, the Commission declined to adopt specific re-licensing rules for future spectrum allocations, in part, because the spectrum leasing rules had been in placed for less than a year and it believed that additional time was needed for an effective secondary market to develop and for its impact to be seen. *Rural Report and Order*, 19 FCC Rcd at 19,098-101 (¶¶ 37-41). However, as the Commission recently recognized, since the spectrum leasing rules became effective, lessees have gained access to spectrum in "hundreds of different spectrum leasing arrangements in a variety of Wireless Radio Services," including cellular, broadband PCS, SMR, BRS and the 39 GHz Service. *2006 Biennial Regulatory Review*, Report, 22 FCC Rcd 3006, 3019 (2007). *See also* Verizon Wireless April 4, 2007 Ex Parte at 6 (stating that "hundreds of spectrum leasing arrangements, each involving one or more call signs, have been granted or accepted since 2004, or have otherwise taken effect").

Such a patchwork of conflicting obligations would frustrate sensible build out practices and undercut the bedrock principle of "regulatory symmetry" the Commission applies to new CMRS regulation. More than a decade ago, it declared that Congress "mandated that similar commercial mobile radio services be accorded similar regulatory treatment under the Commission's Rules. The broad goal of this action is to ensure that economic forces – not disparate regulatory burdens – shape the development of the CMRS marketplace."[52] The *Further Notice* fails even to acknowledge this mandate, let alone explain why the proposed unique performance standards could possibly meet this mandate.

A geographic build mandate ignores the stark disparities in population densities that exist today. According to 2000 Census data, 50 percent of the population lives in the most densely populated counties in the country, covering only 3 percent of the geographic area of the nation.[53] Geographic build out requirements would thus force licensees to divert capital into areas where it is uneconomic to provide additional wireless services, thereby depriving capital investment where it would otherwise be more likely to produce public benefit.

Moreover, a geographic build mandate would be a solution in search of a problem. There is no evidence that wireless broadband services are not being deployed in rural areas. To the contrary, and as Verizon Wireless has already placed in the record, ample data substantiate the extensive and expanding nature of wireless services in rural areas, as well as the widespread and

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[52] *Implementation of Sections 3(n) and 332 of the Communications Act*, Third Report and Order, 9 FCC Rcd 7988, 7994 (1993).

[53] *See* U.S. Department of Census, Population, Housing Units, Area, and Density for Counties: 2000 at http://www.census.gov/population/www/censusdata/density.html.

increasing availability of spectrum for entities interested in providing wireless services in rural areas.[54]

A geographic-based build out requirement raises complex implementation questions. As the Commission recognizes, any geographic-based requirement must set forth a bright line test as to which lands "count." While the Commission proposes to exclude all "government land," the breadth of the exclusion is unclear. Would state parks be covered? Similarly, should certain bodies of water be included? If so, which ones? Even if the Commission were able to resolve all these questions, a detailed Commission analysis would be required of each build out notification. At that time, there are likely to be many reasonable, but unforeseeable interpretation differences. There is simply no rational basis to impose this complex and burdensome yet unnecessary regime.

C. Regulatory Problems Associated with Geographic Licensing Would Be Further Exacerbated By Adoption of EA-by-EA Assessments and More Frequent Benchmarks

Evaluating geographic coverage on an EA-by-EA basis even if licenses are awarded by REAGs and more frequent build out filing deadlines will make network deployment more arbitrary, inefficient and costly. First, the more specific regulatory mandates are with respect to how limited capital is to be allocated, the less flexibility carriers have to engage in competitive differentiation. If every licensee in every 700 MHz block—regardless of license size—has to build out 25 percent of the geography within three years, carrier builds will be very similar. By contrast, providing carriers with flexible rules that allow for differentiation will yield a collection of networks offering a broader menu of cost, quality, feature, and footprint coverage.[55]

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[54] *See* Letter from John T. Scott, Verizon Wireless, to Marlene H. Dortch, FCC, WT Docket No. 06-150 (Apr. 4, 2007) ("Verizon Wireless April 4, 2007 Ex Parte").

[55] In fact the Commission itself found that these benefits would flow from a flexible rather

Equally troubling is the proposal for a very early build out requirement, at the 3-year point. The reality of protracted delays in tower siting, permitting and other local approvals that must be secured before each site is built make such a deadline premature. Such a short deadline would disadvantage carriers – particularly new entrants – that need to secure land and tower space for their 700 MHz network infrastructure. A 3-year deadline would also be counterproductive. Many carriers plan to use the 700 MHz band for next generation broadband technologies. These technologies are still in development and several years away from deployment. A three-year build out requirement would force licensees to deploy current technologies that are already available, thereby thwarting the public's access to next-generation technologies in the near to mid-term. POPS-based performance requirements with more measured benchmarks would better serve the Commission objective of advancing the delivery of 4G wireless broadband services to U.S. consumers.

Second, licensees, like Verizon Wireless, are likely to integrate 700 MHz licenses with existing complements of 800 MHz cellular, 2 GHz PCS, and 1.7/1.9 GHz AWS spectrum. EA-by-EA assessments and frequent build out deadlines, by exhaustively regulating construction with respect to only particular licenses, may create significant inefficiency and waste. Under such a regime, regulation trumps legitimate business considerations – such as the spectrum used for existing deployments – in determining which spectrum will be built-out next.

Third, much has been said in the docket regarding the potential for new entry on a national scale.[56] The proposed build out schedule, however, would make that prospect very

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than rigid approach to performance, and thus rejected geographic buildout mandates, finding that they were not the right way to promote rural service. *Rural Report and Order, supra.*

[56] *See* Letter from Ruth Milkman, Counsel for Access Spectrum L.L.C., and on behalf of the Coalition for 4G in America, to Marlene Dortch, Secretary, FCC, WT Docket Nos. 96-86,

daunting if not impossible. Such build out requirements will "distort competitive forces, handicapping competitive entrants, for instance, not enjoying economies of scope in extending 700 MHz coverage."[57] If an entrant – with no existing towers, no network equipment, and no engineering expertise – were to win a license, that entity would be faced with simultaneously addressing separate and independent build outs of markets to 25 percent geographic coverage in 3 years. The result is more likely to be a skeletal build to meet a regulation, not a robust build to meet consumers' real wireless communications needs.

D. The Geographic Build Out Proposal Would Undermine the Value of the 700 MHz Spectrum and Harm Auction Proceeds

Not only would the Commission's proposed buildout rule return to the "central planning of wireless markets," but these changes would reduce the value of the 700 MHz spectrum.[58] Professor Hazlett demonstrates how these new requirements would handicap competitive entrants and likely cost the U.S. Treasury billions in auction revenue.

Indeed, the Commission frequently has taken action against state or local governments that attempt to force build out requirements on telecommunications or video providers.[59] As Verizon Wireless outlines above and in previous filings,[60] for more than a decade the Commission has acknowledged the economics of build out, and imposed population-based rather

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06-150 and 06-169, at 2 (Apr. 4, 2007); *Report and Order*, Statements of Chairman Kevin J. Martin, Commissioner Michael J. Copps, Commissioner Jonathan S. Adelstein, and Commissioner Robert M. McDowell.

57 Hazlett at 2.

58 *Id.* at 3-7.

59 *Id.* at 4.

60 *See* Section III.B. *supra*; Verizon Wireless April 4, 2007 Ex Parte.

than geography-based mandates that grant a licensee considerable flexibility on how to construct its network. Prior decisions have reflected the relevant trade-offs and acknowledge that strict build out rules can impose costs that undermine efficiency and ultimately affect the consumer. Professor Hazlett concludes that the current proposal to move to geographic build out requirements would impose significant costs on operators and consumers. Based on data provided by Verizon Wireless estimating costs to build a 4G network to the FCC's proposed geographic standard, Professor Hazlett concludes that even with some adjustments for speculation, "the federal government could still lose billions of dollars in revenue from the regulatory change."[61]

E. A POPS-Based, "Keep-What-You-Use" Requirement Will Ensure the Effective and Efficient Deployment of 4G Wireless Broadband Services

If the Commission believes that specific buildout rules are necessary, it should adopt population-based, "keep-what-you use" performance requirements. The build out regime proposed below involves the strictest performance requirements on CMRS spectrum, but would be straightforward for licensees and the Commission to administer. By contrast, the geographic build out requirements proposed in the *Further Notice* are a return to complex, legacy regulation the Commission has rejected, regulation that would result in wasted investment while stalling investment in next generation networks.

Verizon Wireless instead proposes the following performance requirements for commercial 700 MHz licensees:

- Within five years, licensees must certify that they have covered at least 50 percent of the POPS in their license areas;[62]

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[61] Hazlett at 7.

[62] Verizon Wireless opposes geographic build out requirements. However, if the Commission nevertheless adopts such an approach, the first build out benchmark should be at

- If the licensee has not covered at least 50 percent of the POPS in its area at the end of five years, its license term will be shortened from ten years to eight years;

- At the end of the license term (either eight or ten years), licensees must certify that they have covered at least 75 percent of the POPS in their license areas; and

- If the licensee has not covered at least 75 percent of the POPS in its area at the end of its license term, it loses the entire uncovered area. (For example, if a licensee has only deployed service to 60 percent of the population in15 percent of its geographic area by the end of its license term, the licensee will lose the spectrum covering the remaining 85 percent of its geographic area.)

- Upon a licensee losing its uncovered geographic area, the Commission should re-license that unserved portion of that market as a new license via auction.

These performance requirements will ensure licensees deploy wireless broadband services effectively and efficiently throughout the nation. As an initial matter, this approach accords with the Commission's long-standing policy of utilizing POPS-based construction benchmarks. Carriers provide wireless services for the benefit of the public, making coverage of land mass a poor measure of the public benefit. A POPS-based build out requirement, which can be tailored to provide services where consumers actually will use them and need them, will allow licensees to provide wireless broadband services effectively and efficiently in both urban and rural areas.

In adopting the proposed POPS-based performance requirements, the Commission would be imposing the strictest build out requirements *ever*, without any factual record to justify reversal of its flexible past policies or any evidence that they have failed. Typically, the FCC has imposed a "substantial service" requirement, under which licensees must provide service to approximately 25 percent of the population before the end of the license term.[63] Even in the

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five years – rather than three years – to allow completion of the 4G standards process.

[63] *See* Verizon Wireless April 4, 2007 Ex Parte at Attachment.

Broadband PCS context, the Commission initially required licensees to build out to only one-third of the population within five years and two-thirds of the population in ten years.[64] And this requirement only applied to the 30 MHz Broadband PCS blocks.[65] In addition, this requirement was removed less than two years ago when the Commission decided that relying on a substantial service requirement and a set of safe harbors was more appropriate than inflexible coverage requirements.[66]

This proposal ensures rapid deployment and service to the public. Carriers who fail to meet the interim five-year build out requirement would face sanctions shortening their licenses. In addition, carriers who fail to meet the eight/ten-year 75 percent coverage requirement would face the risk of losing unused spectrum in a re-auction. The "new applicant" process provides an opportunity for third parties to bid for the un-served area, but does not delay or foreclose service if no new bidder materializes. In that case, the incumbent licensee may reclaim the unserved area. Moreover, this straightforward proposal – unlike the exceedingly complex RCA proposal[67] – will not impose significant monitoring or administrative burdens on the Commission or licensees.

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64 *Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands*, Report and Order, FCC 03-251, ¶ 75 (Nov. 25, 2003).

65 *Id.* Licensees of the 10 and 15 MHz Broadband PCS blocks were only required to provide coverage to one-quarter of the population or make a showing of substantial service within five years. 47 C.F.R. § 24.203(b).

66 *See Facilitating the Provision of Spectrum-Based Services to Rural Areas and Promoting Opportunities for Rural Telephone Cos. to Provide Spectrum-Based Services*, Report and Order and Further Notice of Proposed Rulemaking, 19 FCC Rcd 19,078, 19,120-22 (¶¶ 74-76) (2004) (extending the substantial service construction option to the 30 MHz broadband PCS licensees, 800 MHz SMR licensees – blocks A, B, and C, certain 220 MHz licensees, Location Monitoring Service licensees, and 700 MHz Public Safety licensees).

67 Comments of Rural Cellular Association, WT Docket No. 06-150, at 9, n.18 (Sept. 29, 2006).

IV. THE COMMISSION SHOULD ADOPT PROCEDURES THAT PROMOTE A COMPETITIVE AUCTION

A. The Commission Should Reject Requests To Erect Artificial Auction Eligibility Restrictions

In the *Further Notice,* the FCC seeks comment on an ex parte proposal submitted by Media Access Project et al. (collectively, "Media Access Project") to exclude incumbent local exchange carriers, incumbent cable operators, and large wireless carriers from eligibility for licenses in the 700 MHz band.[68] Verizon Wireless strongly opposes this unfounded and anti-competitive proposal.[69] There is no evidence justifying such discrimination. There is not a shred of evidence that these providers seek to acquire 700 MHz spectrum for anti-competitive purposes, nor is there a lack of wireless competition that could support such eligibility restrictions. To the contrary, as Professor Hazlett documents, consistent with the interpretation that incumbent national wireless networks acquire licenses in order to more efficiently compete with rivals, during the period in which these networks consolidated licenses into national networks, prices fell precipitously.[70] The stringent, anti-competitive limitations that Media Access Project proposes would be unfounded, anti-consumer and contrary to the public interest.

First, the FCC has repeatedly found that open, competitive bidding serves the public interest and is the most efficient means for licensing spectrum.[71] Open competitive bidding will

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68 *See Further Notice*, ¶ 221.

69 *Rulemaking to Amend Parts 1, 2, 21, and 25 of the Comm'ns Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Serv. and for Fixed Satellite Servs.*, Third Order on Reconsideration, 13 FCC Rcd 4856, 4962, Separate Statement of Commissioner Furchtgott-Roth Dissenting in Part (1998) ("*Furchtgott-Roth LMDS Statement*").

70 Hazlett at 9.

71 *See, e.g., 2004 Biennial Regulatory Review*, Wireless Telecommunications Bureau Staff Report, 20 FCC Rcd 124 (2005).

ensure that this scarce, valuable resource will be put to its highest and best use.[72] As a general matter, "bans on competition should be used only to prevent a substantial competitive harm to a specific market."[73] Restricting bidding to a limited class of entities may result in the spectrum being used for a purpose other than its highest and best use. Alternatively, it could result in the spectrum being utilized by an entity that is not capable of utilizing it and deploying service in the most efficient manner. Such artificial restrictions will result in significant losses for the public. For these reasons, the Commission has repeatedly used open bidding in recent years, generally rejecting all calls for closed bidding.[74] Media Access Project has offered no evidence or rationale for departing from this prior policy.

Second, restricting eligibility will adversely impact auction revenues and risk meeting Congress's fiscal goals for the auction. It would unquestionably reduce the auction proceeds available to the U.S. Treasury for deficit reduction. Multiple programs designed to facilitate the DTV transition and the deployment of interoperable communications systems for Public Safety will be funded by the 700 MHz auction.[75] By limiting eligibility, the resulting elimination of

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72 *See, e.g., Public Notice, DA 00-49; Auction of C and F Block Broadband PCS Licenses; NextWave Personal Commc'ns, Inc. and NextWave Power Partners Inc.*, Order on Reconsideration, 15 FCC Rcd 17,500, 17,514-15 (¶ 27) (2000) ("Section 309(j) embodies a presumption that licenses should be allocated as a result of an auction to hose who place the highest value on the use of the spectrum. Such entities are presumed to be those best able to put the licenses to their most efficient use.").

73 *Furchtgott-Roth LMDS Statement*, 13 FCC Rcd at 4962.

74 *See, e.g., Amendment of the Commission's Rules Regarding Installment Payment Financing for Personal Commc'ns Servs. (PCS) Licensees*, Sixth Report and Order and Order on Reconsideration, 15 FCC Rcd 16,266, 16, 267-69 (¶ 2) (2000) (eliminating closed bidding for certain C and F block licenses).

75 *See* Digital Television Transition and Public Safety Act of 2005, Pub. L. No. 109-1171, §§ 3004-3005 (2006) (portion of the Deficit Reduction Act of 2005).

competition will ensure that the spectrum is auctioned at a price lower than its true market value. As a result, the viability of these valuable and necessary programs will be at risk.

Third, LECs, cable operators, and wireless providers have proven track records of designing and deploying highly sophisticated communications networks. Every year in its CMRS competition reports, the Commission has pointed to the vigorous competition in the CMRS market that has resulted from the competing networks built by these and many other companies. Although other entities could obtain the necessary financial resources and technical experience to deploy such complex networks, there is no basis for barring current providers of communications services from the auction.

Fourth, Media Access Project's proposed restrictions are completely unfounded. The broadband market is increasingly competitive. As the Commission noted in its recent High-Speed Data Services Report, 99 percent of zip codes have at least one high-speed connection in service to an end user and many zip codes have multiple available high-speed services.[76] The wireless broadband market is also extremely competitive. Currently, 98 percent of the U.S. population lives in counties with access to three or more different operators offering mobile telephone service.[77] The vast majority of these operators also offer some form of data service.[78] Most wireless carriers are in the process of deploying their next-generation networks that will

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[76] *See* High-Speed Services for Internet Access: Status as of June 30, 2006, Industry Analysis and Technology Division, Wireline Competition Bureau, at 2-3 (Jan. 2007) http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-270128A1.pdf (last visited May 10, 2007) (noting that satellite has some presence in 90 percent of zip codes and ADSL and/or cable modem have some presence in 88 percent of zip codes).

[77] *11th Annual Competition Report*, 21 FCC Rcd at 10,947 (¶ 2).

[78] For example, Verizon Wireless offers customers a variety of data services under which consumers can access the Internet, check email, and download a variety of applications and content. AT&T Mobility, Sprint, T-Mobile, Alltel, and a wide range of resellers offer customers similar data services.

offer wireless consumers broadband services at speeds comparable with ADSL and cable modem.[79] Many incumbent carriers, however, continue to require additional spectrum to ensure that they will be able to provide high quality, spectrum-intensive advanced services. Thus, despite Media Access Project's wholly unsupported claims that incumbent carriers intend to invest in the 700 MHz band solely to warehouse spectrum and prevent further competition,[80] these carriers need the option of bidding on the 700 MHz band if they are to compete in this increasingly competitive market. In fact, evidence from the recent AWS auction supports the view that wireless carriers, of any size, purchase licenses for productive purposes.[81]

Fifth, Media Access Project's proposed limitations are not necessary to encourage new entrants and may in fact inhibit competition. Historically, the FCC has relied on its designated entity program to promote new entry by small and minority businesses. As a result of this program, new entrants have proven successful in many of the FCC's auctions. Those that have not been successful lack the necessary financial wherewithal and technical expertise to

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79 *See, e.g.*, Verizon Wireless Launches Faster New Wireless Broadband Network, News Release, Feb. 1, 2007, http://news.vzw.com/news/2007/02/pr2007-02-01a.html (last visited May 22, 2007); Cingular Launches 3G Network, News Release, Dec. 6, 2005, http://att.centralcast.net/cingularnewsarchive/Release.aspx?ID=3781 (last visited May 22, 2007); Sprint Nextel Announces 4G Wireless Broadband Initiative with Intel, Motorola and Samsung, News Release, Aug. 8, 2006, http://www2.sprint.com/mr/news_dtl.do?id=12960 (last visited May 22, 2007); Alltel Offers Wireless Broadband Service in Three Markets, Mar. 28, 2005, http://www.alltel.com/corporate/media/news/05/mar/n411mar2805a.html (last visited May 22, 2007).

80 Ex Parte Comments of the Ad Hoc Public Interest Spectrum Coalition, WT Docket No. 06-150, at 7 (Apr. 3, 2007). To the extent the Commission believes that wireless carriers are warehousing spectrum, this 700 MHz auction is not the appropriate mechanism for addressing this concern. Instead, the Commission should initiate a separate enforcement proceeding if it believes a particular carrier is not complying with the Commission's buildout rules. Restricting eligibility to an entire class of providers simply because the Commission thinks one provider may be violating the Commission's rules is clearly inappropriate and would result in extreme long-term harm to the public.

81 Hazlett at 12.

successfully deploy a network and efficiently provide service. When the Commission has imposed alternative mechanisms for encouraging new entrants, they have failed. In the LMDS context, the Commission initially adopted an eligibility restriction similar to the one proposed by Media Access Project under which LECs and cable companies (as well as entities owning an attributable interest in those firms) were prohibited from obtaining an LMDS license whose geographic service area significantly overlapped the incumbent's authorized or franchised service area.[82] The Commission, however, ultimately repealed this prohibition, noting that "the restriction has not resulted in LMDS entry into the local telephone or MVPD markets" and that "there is no significant likelihood…that the eligibility restriction has been or will be an effective way to address any…harm to competition."[83] Prior auctions in which the FCC utilized closed bidding have resulted in similar, well-documented failures, delaying new service for years.

For these reasons, the Commission should reject the Media Access Project proposal and instead allow open competitive bidding to determine the highest and best use of the 700 MHz band, as it has historically done with great success.

B. The Commission Should Adopt Anonymous Bidding Rules for the 700 MHz Auction Without an Eligibility Ratio Threshold

In its *Further Notice*, the Commission requests comment on whether it should implement

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82 *See Rulemaking to Amend Parts 1, 2, 21, and 25 of the Comm'ns Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Serv. and for Fixed Satellite Servs.*, Second Report and Order, Order on Reconsideration and Fifth Notice of Proposed Rulemaking, 12 FCC Rcd 12,545, 12,556 (1997).

83 *See Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Serv. and for Fixed Satellite Servs.*, Third Report and Order and Memorandum Opinion and Order, 15 FCC Rcd 11,857, 11,867-8 (¶ 23) (2000).

anonymous bidding for the 700 MHz auction.[84] Verizon Wireless supported the Commission's proposal to use anonymous bidding in Auction No. 66 for Advanced Wireless Service ("AWS") licenses,[85] and supports the use of anonymous bidding for this auction. Verizon Wireless does not believe, however, the Commission should undermine the purpose of anonymous bidding by providing an escape from these rules if the "eligibility ratio" is greater than three.

Despite the use of an eligibility ratio in Auction No. 66, Verizon Wireless still believes that the right course is to have no threshold, but to simply withhold the information from bidders until the close of the auction. Imposing limitations on the release of bidder information prior to and during the course of an auction ensures that bidders will be appropriately focused on the licenses and their value, not on other bidders and their bidding strategies. Certain information is necessary to ensure that bidders are able to comply with the Commission's rules about permissible communications during the course of the auction and to ensure compliance with anti-collusion restrictions. However, disclosure of bidder information beyond that required to comply with the Commission's rules is at best unnecessary and, at worst, may facilitate bid signaling or other collusive behavior.

First, in an auction of significant MHz pops, which a 700 MHz auction will be, reaching an eligibility ratio of 3 (or even 4 or 5) does not guarantee that there will be significant competition for all licenses. For example in AWS, nearly 20 percent of the licenses received either one or no bids. Thirty percent of the licenses received fewer than five bids.

Second, anonymous bidding rules will prevent strategies whose sole purpose is to block a bidder from aggregating licenses at auction. This is critical because the Commission is clearly

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84 *See Further Notice*, ¶¶ 246-249.

85 *See, e.g.*, Comments of Verizon Wireless, AU Docket No. 06-30 (Feb. 14, 2006).

not intending to adopt package bidding for the whole auction.[86] Moreover, there is nothing to indicate that blocking strategies would decrease in the face of a more competitive auction. Without the distraction of knowing whom they are bidding against, bidders can focus on their bids and licenses of interest rather than the actions of other bidders. The result would be a more efficient auction.

Finally, Verizon Wireless disagrees with PISC that some bidders entered the auction solely for the purpose of increasing the eligibility ratio.[87] The facts belie PISC's assertions, for example, that designated entities with ties to incumbents "had no intent to seriously participate" and filed to ensure that there was not anonymous bidding.[88] Of the top 20 depositors representing 97.2 percent of the upfront deposits, only two were affiliated with incumbents and those two entities were active bidders and won valuable licenses in the auction. Additionally, PISC asserted there were eleven bidders, with probable ties to incumbents, who did not actively bid in Auction 66 and as such only deposited to ensure there was not anonymous bidding. According to the Forms 175 filed at the Commission, these eleven bidders certified to their ownership structures and showed no ties between them and any incumbents. Furthermore, the bidding units associated with these bidders would not have changed the FCC's decision on the anonymous bidding outcome. That being said, because the Commission's rules in AWS permitted any single bidder to account for 50 percent of the total bidding units in the auction, there is still considerable incentive for any bidder who opposes anonymous bidding to maximize

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86 Verizon Wireless does not support combinatorial bidding in the 700 MHz auction for the reasons described *infra*.

87 *See* Letter from Harold Feld, Senior Vice President, Media Access Project to Marlene H. Dortch, Secretary, FCC, 1 (April 19, 2007).

88 *See Ex Parte* Comments of Ad Hoc Public Interest Spectrum Coalition, WT Dkt. Nos. 06-150, 05-211, and 96-98, PS Dkt. No. 06-229, 15 (Apr. 3, 2007).

their upfront payments, even if they do not intend to bid at those levels, if they believe their final high bids will be at or above their initial deposit amount. For example, by the start of round 2 in Auction No. 66, eligibility had already dropped to a level such that the auction would have been deemed non-competitive, leading to the conclusion that some parties probably did make excess upfront payments solely to affect the auction's eligibility ratio. As long as there is any competitive ratio factor and the FCC maintains a deposit factor as high as 50 percent, there will be opportunities for those who oppose anonymous bidding to try and "game" the system.

C. The Commission Should Reject the Use of Hybrid Package Bidding in the Auction

In discussing several alternative Upper 700 MHz band plan proposals, the Commission seeks comment on whether to use combinatorial bidding for bidders to aggregate some REAG licenses into a single nationwide license.[89] Verizon Wireless opposes this proposal. For the reasons that Karen Wrege, an expert on the Commission's spectrum auctions procedures, outlines in her attached declaration,[90] using combinatorial or "package" bidding in limited spectrum blocks will introduce unnecessary complication into the auction process and should be rejected. This proposal is not sufficiently explained in the *Further Notice* and the Commission has not evidenced the capability to handle any large-scale simultaneous multiple round auction with package bidding (SMR-PB) and certainly not one with such a novel approach to package bidding. Moreover, because bidders view licenses in this auction as substitutes and will look to fill their spectrum needs through all available licenses, applying combinatorial bidding selectively to some licenses in an auction and not to others "will make it difficult for bidders to

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89 *See Further Notice*, ¶¶ 191, 202, 206.

90 *See* Declaration of Karen M. Wrege (May 23, 2007), Attachment B ("Wrege Declaration"). Ms. Wrege is the former manager of the FCC's spectrum auction software team who, among other things, oversaw the development of three separate FCC production package bidding auction systems and one software simulator.

manage their eligibility effectively, limit their ability to move from one block to another and. . . create exposure problems – the very thing combinatorial auctions are designed to eliminate."[91]

There is no reason for the Commission to propose providing a combinatorial bidding opportunity for the purpose of combining large regional licenses into a nationwide license. It has repeatedly declined to auction spectrum in a nationwide license, and does so again here.[92] Furthermore, the proposal appears in conflict with the Commission's findings in this docket, "Given the ability of licensees to combine REAGs in the upcoming auction to create regional or nationwide service territories through standard bids, adopting nationwide licensing for a spectrum block is unnecessary. Licensees will be able to seek to acquire and combine licenses based on REAGs, as well as licenses based on other area sizes, in order to achieve larger footprints, including nationwide coverage, if that is their goal."[93] Given this finding, there is no apparent reason for considering package bidding for the REAGs.

Even more problematic, the Commission proposes to use combinatorial bidding only in the Upper band and only for licenses auctioned as REAGs.[94] The Commission treats its package bidding proposal as a relatively simple matter, providing almost no detail on how package bidding will be implemented in this auction. For example, the *Further Notice* is silent on whether the FCC plans to hold a single, integrated auction or two auctions with combinatorial bidding used in only one. Because there is a statutory deadline to auction this spectrum by

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91 *Id.* at 10

92 *See Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands*, Report and Order, 18 FCC Rcd 25162, 25175-77 (¶¶ 35-40) (2003); *Report and Order* at ¶ 45.

93 *See Report & Order*, at ¶ 45 (footnote omitted).

94 *Id.*, ¶ 191.

January 28, 2008[95] and because bidders would clearly consider REAGs as substitutes for other licenses in the Lower 700 MHz band, it seems inconceivable that the FCC would consider holding two auctions for this spectrum. Moreover, previously the Commission has declined to conduct two separate but concurrent auctions – one SMR and one package bidding – and instead chosen to use a single SMR auction because of the complications associated with participating in two separate auctions.[96]

On the other hand, the Commission does not explain how it would integrate combinatorial bidding with the traditional simultaneous multi-round ("SMR") auction process. As Ms. Wrege notes, the process of combining these two auction systems is anything but easy.[97] "[T]his approach is completely different from anything that has ever been publicly discussed, studied, or developed in connection with the FCC spectrum auction program. As a result, the Commission has not had the benefit of public forums to address the important implementation issues that have been continually brought up over the last seven years by the industry, and the industry has not had the benefit of sufficient time to study the implications of this new approach."[98] In her declaration, she explains the considerable outreach efforts the FCC usually takes when developing a new bidding approach, using both its own simulation tools as well as relying on independent software and economic testers to validate both the auction design and software systems. Furthermore, the Commission typically publishes the results from such

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95 DTV Act, §§ 3003-3004.

96 *Auction of Advanced Wireless Services Licenses Scheduled for June 29, 2006*, Public Notice, 21 FCC Rcd 4562 (Apr. 12, 2006).

97 Wrege Declaration at 6-9. Verizon Wireless has elsewhere pointed out the difficulty of permitting SMR and package bids in the same auction. *See* Reply Comments of Verizon Wireless, AU Docket No. 06-30, at 1-6 (Feb. 28, 2006).

98 Wrege Declaration at 6.

testing, permitting other experts to review and comment.[99] Here, although it is proposing a totally novel approach to package bidding, it has gone through no such review process.

The Commission itself has noted the "[t]he SMR-PB rules on activity and eligibility, minimum acceptable bids, bid withdrawals, and many other auctions specifics are very different from the rules under the traditional SMR format."[100] Adoption of package bidding for only a subset of the licenses in a single auction would add a layer of complexity to this auction that would tax Commission staff and require a greater expenditure of resources by auction participants. Ms. Wrege describes how during the course of Auction 65, the FCC was forced to suspend bidding for several days to resolve software bugs that resulted from modifications it had made to its auction system.[101] In that case it had more than a year to make those software modifications. Here, the Commission would have the impossible task to make these modifications or create new software in less than six months.[102] At a minimum, Ms. Wrege posits that the changes to the Commission's Integrated Spectrum Auction System (ISAS) core component and calculations would include "round activity calculations; maximum dollar exposure calculations; minimum acceptable bid calculations; the winner determination and pricing optimization problems; and the round results file formats."[103]

There are other reasons why the Commission cannot implement combinatorial bidding

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99 *Id.* at 6-7.

100 *Auction of Licenses in the 747-762 and 777-792 MHz Bands Scheduled for June 19, 2002*, Public Notice, 17 FCC Rcd 5140, 5170 (2002) ("2002 Auction Public Notice").

101 Wrege Declaration at 7.

102 *Id.* at 9. Ms. Wrege suggests that the scope of these changes is "tantamount to building an entirely new auction system." *Id.*

103 *Id.* at 9.

for some licenses in the auction and not for others. In order to meet their spectrum needs, bidders will want to bid on REAG or EA or CMA licenses. The rules must provide bidders with the flexibility to bid on all licenses and the ability to coordinate bidding strategies across these licenses, and therefore must be consistent across the band. This is not possible if some licenses are auctioned using package bidding while others are auctioned under the traditional SMR process. As Ms. Wrege states, "a hybrid part-combinatorial, part-SMR auction for the remaining 700 MHz spectrum will also significantly complicate bidder participation in the auction."[104]

The interplay of eligibility rules and the bids that are considered when choosing provisional winners provides a good example of the complications created by a hybrid auction. A bidder must purchase eligibility to participate in an auction. This eligibility is expressed in terms of bidding units, which are purchased through the amount of upfront payments a bidder submits before the auction. However, if the FCC auctions REAGs using combinatorial bidding and EAs and CMAs using SMR, the Commission has not addressed the complexity of having bidders manage eligibility in both the package bidding and the SMR auctions at the same time. Under the FCC's combinatorial bidding procedures, "[b]ecause a bidder's bids from all prior rounds are considered in determining provisionally winning bids, it is possible for a bidder to become a provisional winner for a license or package even though it does not have sufficient eligibility to place a new bid on that license or package. In such a case, the bidder will be awarded the license or package at the end of the auction if it has made the winning bid, but it will not be permitted to place any new bids on the license or package during the auction."[105]

This hybrid auction could create a significant exposure problem for bidders where, due to

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104 *Id.* at 9.

105 *2002 Auction Public Notice*, 17 FCC Rcd at 5172.

old bids being considered in the combinatorial band(s), a bidder could end up winning an REAG that covers license areas that it has also won as CMAs and EAs leaving the party with excess spectrum. This exposure risk adds complexity and uncertainty for bidders participating in the auction. Suppose a bidder decides during the auction that it is likely to be outbid on an REAG that it has bid on in the combinatorial bidding process. The bidder may then abandon the REAG license and bid on substitutable EAs and CMAs in the same geographic area. However, if later bids by other combinatorial bidding participants result in the bidder having the provisionally winning bid for that REAG, it could be foreclosed from continuing to bid on that license in later rounds because it has used its eligibility for the substitutable EA and CMA licenses. It is also possible that the bidder might end up winning a REAG that covers license areas that it has also won as CMAs and EAs, leaving the party with excess spectrum.

There are many unanswered questions about the specifics of combinatorial bidding and the Commission's ability to implement combinatorial bidding. Given the importance of the 700 MHz auction, the downside risks of this new, unproven hybrid auction mechanism are far too great for the Commission to experiment with combinatorial bidding at this time. As Ms. Wrege concludes, "Given the lack of public consultation and the limited time before the auction must begin, the FCC should not implement a hybrid combinatorial auction design for the 700 MHz band. I believe the FCC should implement its tested, tried-and-true simultaneous multiple round auction design and use its familiar and reliable software for this important event."[106]

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[106] Wrege Declaration at 12.

V. THE COMMISSION SHOULD REJECT ELEMENTS OF FRONTLINE'S PROPOSALS THAT IMPEDE COMMISSION GOALS AND UNDERMINE THE DEVELOPMENT OF A BROADBAND PUBLIC SAFETY NETWORK

The Commission's *9th NPRM* and the resulting record of comments provides a sound basis for a new path for Public Safety to enter into one or more public-private partnerships to use commercial off-the-shelf broadband solutions and to share the extensive commercial wireless infrastructure that already blankets the country. Frontline proposes a partnership in which it would be Public Safety's exclusive partner to construct a broadband Public Safety network in exchange for gaining access to Public Safety spectrum. Frontline's proposal has many elements that would undermine the benefits of the partnership model and should be rejected.

First, the proposal has "poison pill" license conditions that effectively preclude existing licensees from bidding for the so-called E-Block, driving away the commercial entities that have the most experience in building wireless networks. Second, the proposal would require Public Safety entities to allow commercial encroachment in Public Safety spectrum, contrary to Section 337 of the Communications Act and Public Safety's own interests. Third, because the details of the private-public partnership would not be determined until after the auction has concluded, the proposal creates considerable uncertainty and risk for anyone interested in bidding on the E Block license, as well as for Public Safety. Similar to other aspects of the Frontline proposal, this requirement would discourage established wireless companies from pursuing a partnership with Public Safety, and as a result, would not assure Public Safety that they are getting the best partner to serve their needs.

Verizon Wireless has previously noted that the competitive RFP process would provide the best means for promoting private-public partnerships. However, if a Frontline-like proposal is adopted, the Commission must take steps to ensure that the most effective private-public partnerships are established. This includes defining Public Safety's operational requirements in

advance of the auction so that bidders have sufficient information on which to make their bids. And, the Commission must ensure that any rights granted to the E Block winner do not foreclose the opportunity for Public Safety to consider other commercial partnerships or to purchase communications services from other commercial operators. Adoption of a Frontline-like proposal should not result in a monopoly Public Safety provider. Competition for emergency communications services will ensure that first responders get the best price, quality, and capabilities that commercial companies have to offer.

A. Frontline Proposes Unjustified and Unlawful License Conditions Designed to Reduce Bidder Interest in the E Block

Frontline proposes that the Commission burden the E Block licensee[107] with a number of onerous conditions that are designed to reduce bidder interest in the E Block and ensure that Frontline wins the block at auction. Specifically, Frontline suggests that the E Block licensee be required to comply with "open access" device and application conditions both in the E Block and in all other wireless licenses held by the licensee. The E Block licensee would also be required to offer roaming to all providers using devices compatible with the E Block, and to extend this requirement to all licenses held by the E Block licensee. Finally, the E Block licensee would be required to operate exclusively as a wholesale provider for the E Block spectrum. These "poison pills" are not only unfounded and will disserve both Public Safety and the broader public interest; they would violate Section 309 of the Communications Act. Moreover, as Professor Hazlett describes in his analysis, a rigid regulatory framework stifles rather than advances innovation, depriving the "licensee – and its customers – of the flexibility needed to find and

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[107] Verizon Wireless will use the term "E-Block" to refer to Frontline's proposal to segregate a new 10 MHz block out of the existing D-Block of Upper Band 700 MHz spectrum. As discussed above, however, Verizon Wireless supports Commission "Proposal 3," which contains only two blocks in the Upper Band, a 22 MHz C Block and a 10 MHz D-Block.

adopt the most efficient methods."[108] Ultimately, such conditions will sharply decrease auction revenues, contrary to the many other important public interest benefits funded by the 700 MHz auction proceeds. Moreover, such conditions would impact the financial viability of the E Block licensee, raising serious questions about whether such a licensee is the most qualified "partner" for Public Safety.

1. Open Access And Net Neutrality Requirements on the E Block License Are Unfounded And Would Be Incompatible With Public Safety Objectives

Verizon Wireless and other commenting parties have explained at length in other contexts why open-access and net neutrality requirements for wireless providers would be contrary to sound regulatory policy and reasoned decision making.[109] All of these reasons apply with even more force here, where the Commission is being asked to radically change the regulatory landscape on an incomplete record in the context of this auction proceeding.

As Verizon Wireless has previously shown, the wireless marketplace is vigorously competitive, making such regulatory interventions unnecessary. Proponents of open access and net neutrality rules have not demonstrated any type of market failure that would justify imposition of these requirements.[110] Moreover, open access and net neutrality requirements are inconsistent with the nature of wireless networks, which depend on subscriber use of a shared spectrum resource that can be affected by the actions of individual users.[111] And adoption of

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108 Hazlett at 13.

109 Comments of Verizon Wireless, RM-11361 (Apr. 30, 2007) ("Verizon Wireless April 30, 2007 Comments"). *See also* Hazlett at 15-19.

110 *See, e.g.*, Verizon Wireless April 30, 2007 Comments at 6-28.

111 *See, e.g.*, *id.* at 30-31, 33-35.

such requirements would conflict with the overarching deregulatory approach to wireless services that Congress and the Commission have followed for over a decade.[112]

Moreover, open access and net neutrality requirements on the E Block licensee would threaten important Public Safety objectives. Replacing the existing carrier-managed network model with an open-access network model would make it much more difficult, if not impossible, for carriers using the E Block spectrum to comply with law enforcement requests under CALEA. For example, an open-access network would allow encrypted applications that could impede law enforcement's ability to engage in lawful surveillance, and such a network would hinder carriers' ability to isolate certain types of packet mode communications and deliver them to law enforcement in a format that complies with the statute.[113] Similarly, an open-access network architecture, coupled with a customer entitlement to attach any device to the network, would make it more difficult for carriers using the E Block spectrum to comply with their E-911 obligations.[114] The handsets that customers would attach to the network would not necessarily be E-911 capable; and even if they were, the network might not be able to communicate with the handset to determine the caller's location.[115]

An open access requirement would prevent wireless carriers from managing their network to minimize interference and optimize service quality. Imposing such a requirement on any wireless network would risk substantial harm to the network and significant degradation of service to wireless consumers. However, experimenting with such an uncontrolled, open-access

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112 *See, e.g., id.* at 4-6 (citing Implementation of Sections 3(n) and 332 of the Communications Act, Third Report and Order, 9 FCC Rcd 7988, 8012 (1994)).

113 *See, e.g.*, *id.* at iii, 37-39.

114 *See, e.g.*, *id.* at 39-44.

115 *See, e.g.*, *id.* at 40, 42-43.

requirement for a system that is specifically designed to be used for Public Safety communications would be particularly dangerous. Frontline's plan contains no safeguards whatsoever to ensure that customers' untested devices and novel uses of spectrum would not reduce the quality of service provided to Public Safety or cause harmful interference to Public Safety communications in adjacent spectrum, especially when used on an "open access" network that Frontline would require Public Safety to share with everyone else. The record in the Skype proceeding is absolutely clear: A wireless open access regime would in fact threaten customers' ability to communicate, because carriers' ability to manage their networks to maximize reliability and prevent disruption would be impeded. For example, the record shows that only a handful of users operating devices on an open network that use large amounts of spectrum for high-speed applications could disrupt the communications of other users on the spectrum. There can be no more dangerous action for the Commission to take than to place the critical communications of first responders on an open, uncontrolled network. Moreover, the concept of an open access network is inherently incompatible with Public Safety's stated need to have a network built to particular standards, performance requirements and reliability. That is why the proper course is for Public Safety to determine how its broadband network should be designed and operate, and then hold an RFP so that companies can compete to build that network. But forcing them onto an open access network would be a hugely damaging decision. Accordingly, adoption of Frontline's proposed open access conditions would be inconsistent with sound public policy and would constitute unreasoned decision-making.

The appropriate forum for addressing whether the Commission should intervene in the highly successful CMRS market by imposing open-access mandates (and if so, how) is not the 700 MHz proceeding, but rather the Commission's open proceedings regarding broadband

deployment[116] and the petition filed by Skype[117] referenced in the *Further Notice*. Those proceedings are appropriately focused on the industry as a whole, rather than the subset of licenses discussed in this proceeding. Moreover, because the 700 MHz auction must be complete by January 28, 2008, the Commission does not have time to gather a record sufficient to fully consider these sweeping last-minute changes Frontline has proposed.

2. Adoption Of Mandatory Roaming Obligations Would Be Unnecessary And Ineffective

The Commission should also reject the requirement that the E Block licensee be compelled to offer mandatory roaming. *First*, such a requirement is unnecessary. Carriers *already* routinely agree to equitable and nondiscriminatory roaming agreements even though there currently is no mandatory roaming requirement.[118] Frontline has not demonstrated any type of market failure that would justify imposition of such a requirement.[119] The Commission

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116 *Broadband Industry Practices*, Notice of Inquiry, FCC 07-31(Apr. 16, 2007) ("*Broadband NOI*").

117 *Petition to Confirm a Consumer's Right to Use Internet Commc'ns Software and Attach Devices to Wireless Networks*, Order, 22 FCC Rcd 5042 (2007).

118 *See, e.g.*, Comments of Cingular Wireless LLC, WC Docket No. 05-265, at 11, 21 (Nov. 28, 2005) ("Cingular has entered into more than 100 automatic roaming agreements with carriers. . . . . There is no evidence of a widespread inability of small carriers to obtain roaming agreements, nor is there any evidence that nationwide carriers have market power"); Reply Comments of T-Mobile USA, Inc. in WC Docket No. 05-265, at 2 (Jan. 26, 2006) ("Because of the competitive importance of roaming to T-Mobile, it has strong incentives to negotiate fairly with all carriers – regardless of whether they operate on a nationwide, regional, or local basis – to obtain the most efficient and widespread coverage for its customers."); Reply Comments of Verizon Wireless in WC Docket No. 05-265, at 26 (Jan. 26, 2006) ("The record in [the automatic roaming proceeding] shows that smaller carriers are able to get automatic roaming agreements and that customers in rural markets can obtain service plans with reasonable roaming rates if they so desire. Carriers supporting FCC automatic roaming regulation have utterly failed to demonstrate that there is a market failure that prevents them from getting automatic roaming agreements at reasonable rates.").

119 *See, e.g.*, Reply Comments of Cingular Wireless, Inc. in WC Docket No, 05-265, at 4 (Jan. 26, 2006) ("[T]he record [in the Commission's ongoing proceeding examining roaming

never imposed automatic roaming for digital service when the CMRS market was less competitive than it is today; there is no plausible basis for it to consider that mandate today, given its repeated findings in recent CMRS competition reports that wireless is a robustly competitive market.

Second, imposing a roaming requirement on the E Block licensee that would have no clear benefit would be bad public policy. This is especially so given that the Commission is involved in an ongoing proceeding to determine whether carriers should be subject to mandatory roaming obligations.[120] Piecemeal regulation is bad public policy – as well as in conflict with the Commission's mandate to ensure "regulatory symmetry" among CMRS providers.[121] As with the "open access" conditions, the Commission should consider whether there is any basis to intervene into inter-carrier agreements through roaming regulation in the generic rulemaking rather than in the 700 MHz auction proceeding.

(Continued . . .)
obligations] persuasively demonstrates that there has been no market failure and that the nationwide carriers have successfully negotiated roaming agreements with the vast majority of carriers."); *see also* note 110, *supra*.

120 *See Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers*, Order, 20 FCC Rcd 19,868 (2005).

121 *See, e.g., Implementation of Sections 3(n) and 332 of the Communications Act; Regulatory Treatment of Mobile Services Amendment of Part 90 of the Commission's Rules To Facilitate Future Development of SMR Systems in the 800 MHz Frequency Band Amendment of Parts 2 and 90 of the Commission's Rules To Provide for the Use of 200 Channels Outside the Designated Filing Areas in the 896-901 MHz and 935-940 MHz Band Allotted to the Specialized Mobile Radio Pool*, Third Report and Order, 9 FCC Rcd 7988, 8003 (¶ 25) (1994) (implementing the "scheme of regulatory symmetry sought by Congress").

3. A Condition Requiring Wholesale Operation in the E Block Is Inefficient and Precludes Major Wireless Carriers from E Block Bidding

Frontline's proposal to require the E Block licensee to operate as a wholesale provider is also contrary to the public interest, and would risk cornering the auction for Frontline. If the Commission proceeds with the Frontline proposal, a wholesale condition would straitjacket the E Block licensee into a potentially failing business model. As the Commission knows, wholesale business plans have been unsuccessful in the past (*e.g.*, NextWave and the Guard Band that is one of the subjects of the instant proceeding[122]), and Frontline's business plan is particularly problematic. Thus, there is a high likelihood that Frontline's wholesale model will fail to generate sufficient revenue to sustain continued operation of that network. If the Commission hopes to increase the chances of a successful public-private partnership, the commercial licensee needs sufficient flexibility to adopt the business plan that is most likely to succeed, not one imposed by the Commission.[123]

A wholesale requirement would also essentially preclude all existing wireless carriers from bidding on the E Block. The implementation and integration of a wholesale model into the existing retail business plans of major wireless carriers would be completely impractical.

4. These Restrictions Would Violate Section 309(j)(3)(D)

Section 309(j)(3)(D) requires the Commission to weigh the "*efficient and intensive use* of the electromagnetic spectrum." (Emphasis added.) This statutory directive can be obeyed only by rejecting Frontline's plan.

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122 Hazlett at 14.

123 Abandonment of the wholesale condition obviates the "serious concerns" regarding the use of designated entity bidding credits for E Block licenses expressed by the Commission and shared by Verizon. If the wholesale condition is adopted, the Commission should *not* provide DE credits to E Block bidders. *See Further Notice*, ¶ 284.

Auctioning the E-Block spectrum to the highest bidder is the best way to ensure that it is used efficiently and intensively. If the Commission rejects the unprecedented and burdensome license conditions proposed by Frontline, the E-Block spectrum will reap its full market value at auction. The E-Block auction winner(s) thus will have strong financial incentives to make "efficient and intensive use" of the spectrum, so that they can recoup the funds they expended to obtain the spectrum.

The Commission repeatedly has recognized that, in spectrum auctions, "the bidder who is willing to pay the most will be highly motivated to rapidly put the license to a use that the public finds valuable because only such a use will make its investment worthwhile."[124] Similarly, the D.C. Circuit has explained that, because "the party able to use the license most efficiently will be able to bid the most," a system of open and competitive bidding ensures that "the license will end up in the hands of the firm best able to develop its potential."[125] In fact, Congress itself, in enacting section 309, noted that "a carefully designed system to obtain competitive bids from competing qualified applicants can speed delivery of services [and] promote efficient and intensive use of electromagnetic spectrum . . . ."[126] As the Second Circuit explained Congress's

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124 *Implementation of Competitive Bidding Rules to License Certain Rural Service Areas*, Report and Order, 17 FCC Rcd 1960, 1968 (¶ 13) (2002); *see also Further Notice*, ¶ 235 ("[T]he competitive bidding process ensures that spectrum licenses are assigned to those who place the highest value on the resource and will be suited to put the licenses to their most efficient use"); *Implementation of Section 309(j) of the Communications Act — Competitive Bidding*, Second Report and Order, 9 FCC Rcd 2348, 2361 (¶ 71) (1994) ("Since a bidder's abilities to introduce valuable new services and to deploy them quickly, intensively, and efficiently increases the value of a license to a bidder, an auction design that awards licenses to those bidders with the highest willingness to pay tends to promote the development and rapid deployment of new services in each area and the efficient and intensive use of the spectrum." (quoting Comments of PacBell, Attachment by Paul R. Milgrom and Robert B. Wilson at 7)).

125 *Mobile Comms. Corp. of Am. v. FCC*, 77 F.3d 1399, 1405 (D.C. Cir. 1995).

126 H.R. Rep. No. 103-111, at 253 (1993), *reprinted in* 1993 U.S.C.C.A.N. 378, 580.

purpose, "the broader purpose of § 309(j) was to create an efficient regulatory regime based on the congressional determination that competitive bidding is the most effective way of allocating resources to their most productive uses."[127]

But the Frontline plan contains poison pill provisions that effectively impose eligibility restrictions on bidders for the E-Block spectrum. Not only would those conditions drastically reduce the number of potential bidders for the E-Block spectrum, but they would also ensure that the spectrum is not auctioned for its highest and best use. Accordingly, Frontline's plan is inconsistent with the statutory goal of efficient and intensive use of the spectrum.

B. Public Safety Cannot Be Required To Share Its Spectrum With The E Block Licensee

Frontline's plan proposes to require Public Safety entities to allow the E Block licensee to use allocated Public Safety spectrum for "commercial" purposes. Requiring Public Safety to share its spectrum with commercial operators would violate Section 337.[128] Both the structure of Section 337(a) and the plain text of Section 337(a)(1) provide that the Commission has no authority to force Public Safety to share its spectrum with commercial licensees.[129]

When determining how to allocate the Upper 700 MHz spectrum, Congress carefully considered and balanced a number of competing policy concerns along with the interests of both commercial and Public Safety users. Congress mandated in Section 337(a)(1) that the Commission "shall allocate" 24 MHz of spectrum to "public safety services"; by contrast, in

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127 *In re NextWave Personal Comm., Inc.*, 200 F.3d 43, 53 (2d Cir. 1999).

128 *See* Comments of Frontline Wireless LCC, PS Docket No. 06-229, at 5 (Feb. 26, 2007) ("Feb. 26, 2007 Frontline Comments") ("[T]he winning bidder would have the exclusive right to use the excess capacity of the public safety broadband spectrum on a secondary, unconditionally preemptible basis.").

129 The converse is also true. Section 337(a)(2) of the Act bars the Commission from compelling commercial entities to share their spectrum with public-safety entities.

Section 337(a)(2), Congress mandated that the Commission allocate 36 MHz of spectrum "for commercial use" and directed that the 36 MHz should "be assigned by competitive bidding."[130] Thus, in drafting Section 337(a), Congress drew a sharp distinction between "commercial use" of the spectrum and use by "public safety services," and it gave precise instructions to the Commission regarding exactly how the 60 MHz of spectrum should be allocated between those two uses.

Frontline's plan to require commercial access to Public Safety spectrum would recast the statute and upset the careful balance that Congress struck. For all practical purposes, Frontline's plan would require the Commission to auction for commercial use not only the 36 MHz of spectrum that Congress allocated for that purpose, but also the right to use (on an interruptible basis) the 24 MHz of spectrum that Congress allocated and specifically set aside for Public Safety.[131] In effect, Frontline is asking the Commission to allocate — by auction — the right to use up to the *entire* 60 MHz in the Upper Band. But this encroachment into Public Safety's spectrum by a commercial licensee is flatly inconsistent with the structure of Section 337(a). Congress distinguished between "commercial use" and "public safety services" and required the Commission to allocate exactly 36 MHz to the former and exactly 24 MHz to the latter.[132] It is not for Frontline — or the Commission — to reverse Congress's legislative judgment.

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130 47 U.S.C. § 337(a); *Former Nextel Commc'ns, Inc. Upper 700 MHz Guard Licenses and Revisions to Part 27 of the Comm'ns Rules*, Notice of Proposed Rulemaking, 21 FCC Rcd 10,413, 10,416 (¶ 6) (2006) (Congress "specifically directed the Commission to reallocate twenty-four megahertz for public safety use, and thirty-six megahertz for commercial use").

131 The Commission has proposed to license 12 MHz of broadband Public Safety spectrum to a national Public Safety licensee, and to grant that licensee additional rights to use 12 MHz of narrowband spectrum on a secondary basis. Consequently, Frontline's plan could result in it having access to all 24 MHz of the Public Safety spectrum.

132 As the Commission has noted, Congress's allocation of 36 MHz of spectrum for "commercial use" was "intended to characterize the nature of the spectrum use as a means of

Requiring Public Safety to give commercial entities access to its spectrum would also violate the plain terms of Section 337(a)(1). In that provision, Congress required the Commission to allocate 24 MHz of spectrum for use by "public safety services." And, as discussed below, that term has a specific meaning under the Act that is irreconcilable with granting a commercial entity access to the spectrum. Accordingly, Section 337(a)(1) bars the Commission from requiring *any* of the 24 MHz of public safety spectrum for any type of commercial use, *including* secondary commercial use by the E Block licensee.

Under Frontline's plan, public safety entities would hold their spectrum licenses in name only; the E Block licensee would have the "blanket" and exclusive authority to use excess public safety spectrum for commercial purposes. Even though public safety entities would hold licenses for 24 MHz of spectrum under Frontline's plan, the plain text of Section 337(a)(1) requires something more. Under that provision, it is not enough for the Commission to allocate 24 MHz of spectrum to "public safety *entities*." Rather, the statute requires the Commission to allocate 24 MHz to "public safety *services*." And "public safety services" has a precise meaning under the statute that is incompatible with any form of commercial use of that spectrum. The Act provides:

> The term "public safety services" means services — (A) the sole or principal purpose of which is to protect the safety of life, health, or property; (B) that are provided — (i) by State or local government entities; or (ii) by nongovernmental organizations that are authorized by a governmental entity whose primary mission is the provision of such services; and (C) that are not made commercially available to the public by the provider.[133]

(Continued . . .)
distinguishing it from the Public Safety use of the companion 24 MHz of the non-auctionable spectrum allocated in the same section of the statute." *Service Rules for the 746-764 MHz Bands, and Revisions to Part 27 of the Comm'ns Rules*, Second Report and Order, 15 FCC Rcd 5299, 5317 (¶ 37) (2000).

[133] 47 U.S.C. § 337(f)(1).

Thus, to comply with the plain language of Section 337(a)(1), not only must the Commission allocate 24 MHz of spectrum to public safety entities, but it must also allocate that spectrum for "public safety *services*" rather than "commercial use." Because Frontline's plan would require Public Safety to share its spectrum with the E Block licensee for commercial use, adoption of Frontline's plan would be inconsistent with this congressional directive.

C. Requiring Public Safety Entities to Partner with the E Block Winner Is Not in Public Safety's Interest

Requiring Public Safety to provide access to its spectrum to the E Block licensee is also not in the best interests of the Public Safety community. Under Frontline's plan, Public Safety entities would have no say over which wireless carrier would be charged with building the Public Safety broadband network. Rather, the important task of constructing that network would be entrusted to whatever carrier happened to win the auction for the E Block license.[134] But this "shotgun marriage" approach is irrational and could dramatically undermine the effective deployment and operation of the Public Safety broadband network.

There is no logical nexus between being the winning bidder for the E Block license and being the entity best suited to construct the Public Safety broadband network. To the contrary, the poison pills included in the Frontline plan — *i.e.,* the requirements that *all* of the E Block licensee's spectrum be subject to open access, net neutrality, and roaming requirements — would render the E Block license highly unattractive to existing carriers, which have the experience necessary to construct a wireless network as vital to the needs of Public Safety and the nation's security as this one. Because it would entrust the critical task of building the Public Safety network to an unknown and untested entity, this aspect of Frontline's plan (which would strip Public Safety of the autonomy to decide what is in its own best interests) is incompatible with

134 *See Further Notice*, ¶ 272.

sound public policy and would not serve the public interest. As already noted, the RFP process laid out in the 9th NPRM would eliminate this problem by giving Public Safety complete control over the selection of an appropriate partner.

D. The Commission Can Advance Public Safety Communications Goals Through Alternatives to the Frontline Proposal.

The Frontline proposal is not necessary to achieve the Commission's public safety communications goals. Frontline presents a false choice – entrust spectrum allocated to Public Safety as well as new commercial spectrum to a yet-to-be-identified licensee saddled with a panoply of conditions unrelated to public safety communications, or forego development of a nationwide public safety broadband network altogether. This analysis ignores the framework already established by the Commission in the 9th NPRM. Moreover, it disregards sensible alternatives likely to yield far greater interoperability returns than Frontline's proposed gamble.

The Commission should not abandon well-founded public safety communications plans in favor of the Frontline scheme. The Commission – consistent with congressional direction – has already taken significant actions to advance public safety communications, including allocating 24 MHz of 700 MHz spectrum for public safety use,[135] planning a re-banding of public safety allocation to consolidate narrowband operations and make the remaining spectrum "broadband-friendly,"[136] and proposing assignment of a single, nationwide license to a Public Safety-controlled entity.[137] In addition, Congress has provided significant funding for the

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135 *See* 47 U.S.C. § 337(a)(1); *Reallocation of Television Channels 60-69, the 746-806 MHz Band*, Report and Order, 12 FCC Rcd 22,953, 22,958-959 (¶ 12) (1997).

136 *See generally Public Safety 8th NPRM*.

137 *See generally Public Safety 9th NPRM*.

enterprise through the DTV Act, which relies on the very 700 MHz auction proceeds Frontline's proposal threatens to diminish.

Frontline ignores alternatives that promote public safety access to broadband technology without the operational risks and legal infirmities of Frontline's proposal. Public safety entities are free, and should be encouraged, to negotiate with commercial 700 MHz auction winners regarding leveraging existing infrastructure and commercial technology to meet Public Safety's communications needs. Through a Request for Proposals ("RFP") process, Public Safety can identify its requirements, and then negotiate with all qualified commercial entities, rather than relying on Frontline or another auction winner as the single entity with which it must negotiate. Without a competitive RFP process, how can Public Safety ensure that it is getting the best deal for first responders? And, if it fails to negotiate acceptable terms with the E Block licensee, what recourse will Public Safety have to purse other commercial partners? Am RFP process will eliminate the risks associated with these uncertainties.

REAG licensing of the entire Upper Band would ensure that all commercial auction winners in the Upper 700 MHz Band will be well positioned to respond to an RFP and efficiently build out regional and national 4G networks that would best support Public Safety "piggy back" efforts. In addition, the Commission should explore priority access for Public Safety in the 700 MHz spectrum. The priority access regime for voice has worked well and there is no reason it should not be extended to wireless broadband networks as well. All of this can be achieved without tying Public Safety's future to an enterprise of questionable legality with shaky commercial prospects.

E. If the Commission Imposes Public Safety Conditions On the E Block Licensee, It Should Work With Public Safety To Identify Its Requirements in Advance of the Auction

In order to bid on a conditioned E Block license without the significant uncertainties of

the Frontline proposal, prospective bidders must know Public Safety's requirements in advance. If the Commission elects to impose a condition requiring the E Block licensee to provide Public Safety with interoperable, broadband communications, Public Safety must define its requirements now. Indeed, Section 309(j) of the Communications Act requires such transparency.

Section 309(j)(3)(E) requires that the FCC "ensure that, in the scheduling of any competitive bidding under this subsection, an *adequate period* is allowed — (i) before issuance of bidding rules, to permit notice and comment on proposed auction procedures; and (ii) after issuance of bidding rules, to ensure that interested parties have a sufficient time to develop business plans, assess market conditions, and evaluate the availability of equipment for the relevant services." (Emphasis added.) Adopting a license condition requiring cooperation with Public Safety without specifying Public Safety's requirements would be inconsistent with this directive.

Imposing a requirement to build a broadband Public Safety network without the necessary details about Public Safety's requirements would not comply with the Commission's statutory mandate because it leaves so much up to *negotiations* between the E Block licensee and Public Safety. Yet these negotiations can take place only *after* the E Block license has been awarded. For example, the statute specifically requires that prospective bidders "have a sufficient time to . . . evaluate the availability of equipment for the relevant services." But a bidder cannot possibly know what "services" it will be expected to provide until after it has negotiated with Public Safety and, accordingly, the bidder cannot "evaluate the availability of equipment for the relevant services" prior to bidding on the E Block spectrum. And this is not the only issue that would remain undetermined until after the auction. But if wireless carriers

have no means to determine what, exactly, their obligations will be as the E Block licensee, they will have no means to determine how much to bid for that spectrum, what their business plan should be, or what the market conditions will be for the E Block spectrum.

While disclosure of Public Safety's requirements would achieve compliance with Section 309(j)(3)(E), such disclosure would have to occur quickly. In order to meet the DTV Act's statutory deadline,[138] Public Safety would need to agree on what entity would determine the requirements, and to disclose all of those requirements, soon. Accordingly, if the Commission elects to condition the E Block license on cooperation with Public Safety, it should take action soon to enable the Public Safety entity that is chosen to make all of the disclosures that Section 309(j)(3)(E) requires so that bidders can have the requisite knowledge needed for a lawful and viable auction.

Even if the Commission is able to determine public safety's requirements in advance of the auction, it must not foreclose competitive options in the provision of emergency communications services. Public safety will benefit the most in terms of price, service quality, and capabilities if multiple wireless companies are competing for their business. As a result, the Commission should reject Frontline's proposal to grant the E Block winner an exclusive right to negotiate with Public Safety. Indeed, it should encourage Public Safety to seek out the best terms from any and all commercial entities and preserve their right to establish agreements or service arrangements with any commercial entity they wish. Public Safety will not be well served if the E Block licensee is established as a monopoly provider of emergency communications services.

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138 DTV Act, §§ 3003-3004.

VI. CONCLUSION

For the foregoing reasons, the Commission should adopt: (1) band Plan Proposal 3 and license the entire Upper Band on an REAG basis; (2) rigorous, population-based performance requirements in a "keep-what-you-use" regime with the first benchmark 5 years after licenses are issued; and (3) procedures that promote a competitive auction, including open eligibility, anonymous bidding, and a traditional SMR design. The Commission should reject elements of the Frontline proposal unrelated to providing nationwide, interoperable broadband communications to Public Safety. To promote the development of advanced, interoperable emergency communications services, the Commission should adopt rules that preserve Public Safety's right to establish any commercial partnerships that it believes will help it accomplish its goals.

Respectfully submitted,

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CERTIFICATE OF SERVICE

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ATTACHMENT A

REGULATORY POLICY AT 700 MHz

COMPETITION, AUCTION RECEIPTS, and ECONOMIC WELFARE

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May 23, 2007

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I. INTRODUCTION

The Federal Communications Commission is scheduled to award licenses, via competitive bidding, for the use of 700 MHz frequencies by early 2008. The FCC is now crafting the rules for spectrum use, as well as for license bidding. These rules may have substantial impact on the economic value delivered to consumers and the magnitude of the license bids.

This paper attempts to help inform the Commission rulemaking by providing economic analysis that shows why four regulatory policies under consideration should not be adopted:

- The use of geographical build-out requirements for licensees, replacing the PCS rule imposing population-based build-out requirements;
- Incumbency rules, under which it is proposed that firms currently offering telephone or video service be banned from bidding for new licenses;
- The Frontline proposal to dedicate 10 MHz of the 60 MHz of commercial spectrum for a hybrid commercial/public safety wireless network;
- Application of "open access" rules for 700 MHz licenses.

I can briefly summarize my conclusions by noting that the policies under consideration – if adopted – would represent a *dirigiste* return to regulatory micro-management of wireless markets. Abandoning population-based build-out requirements in favor of geographically-based mandates would increase the cost of compliance, all else equal, and move away from a system driven by consumer demand to a more regulated system. It would also distort competitive forces, handicapping competitive entrants, for instance, not enjoying scale economies in extending 700 MHz coverage.

Likewise, to restrict incumbent bidding would overlay an additional set of regulatory constraints on top of antitrust rules. In denying certain competitors access to new bandwidth, it would contradict extant Commission findings as to the competitiveness of wireless markets, and perversely undermine efforts by incumbents to efficiently expand service offerings. The proposed policy ignores the fact that competitive entry has often been effectively launched by incumbents expanding their product menus – as when cable TV operators provide broadband service against phone carriers, or phone carriers initiate video service. These competitive forays would be sacrificed under new regulations, harming consumers.

The Frontline proposal to dedicate a 10 MHz block to a network-sharing arrangement to be specified under post-auction negotiations similarly expands the role of regulation. The idea of multi-use systems accommodating commercial applications and public safety communications is a good one, which I have advocated.[1] But the reason it is good is because, by putting public safety demand into the marketplace, society captures the benefits of competitive markets in (a) supplying low cost solutions; (b) making costs

[1] See, e.g., Thomas W. Hazlett, *Katrina's Radio Silence*, FINANCIAL TIMES (Oct. 24, 2005).

transparent, enabling rational choices about whether we should be buying more or fewer inputs and more or fewer services; (c) permitting rival solutions to be deployed when demands or technological opportunities change. The Frontline proposal negates each of these gains, imposing a mandated structure on a particular piece of spectrum, while leaving for later what is the primary objective: aggregating public safety communications user demand so as to achieve advantageous purchases. A market-oriented approach to public safety would empower and incentivize first responder agencies to efficiently contract for services from competitive networks.

Finally, "open access" regulation would sharply change wireless regulation, deter economic efficiencies, and return the Commission to precisely those policies that have failed in the past. Market rivalry has been amply demonstrated as superior in organizing wireless networks for the benefit of consumers to the regulated structures historically imposed.

The 700 MHz band has been slated for reallocation for at least eleven years.[2] The social gains at stake are enormous. The estimated value of the licenses to be sold -- $10-$15 billion according to the Congressional Budget Office[3] -- is only the tip of the iceberg. Prices paid for licenses are dwarfed by the gain to consumers from having more spectrum used to supply more wireless services – probably at least an order of magnitude above license values.[4]

Regressing to command-and-control policies reduces the social value of this bandwidth, destroying valuable services for the public. By expeditiously releasing the spectrum under limited rules that allow full scope for economic network rivalry, the FCC can enable market solutions that optimize frequency use, maximize consumer benefits, and create innovative wireless technologies.

II. GEOGRAPHIC BUILD-OUT REQUIREMENTS WOULD IMPOSE UNECONOMIC COSTS AND DISTORT INVESTMENT

The FCC has long understood that build-out requirements for telecommunications providers constitute a two-edged sword. On the one side, regulators prefer to have

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[2] The Balanced Budget Act of 1997 directed the FCC to auction 78 MHz of spectrum in the 700 MHz band for commercial use, leaving 6 MHz as buffer and 24 MHz for public safety. This followed Chairman Reed E. Hundt's statement, *Digital Television Systems and Their Impact Upon the Existing Television Broadcast Service, Sixth Further Notice of Proposed Rule Making*, FCC 96-317 (Aug. 14, 1996) that 60 MHz of spectrum at channels 60-69 should be auctioned for flexible use. As early as the mid-1980s public safety organizations and cellular technology firms had requested releasing UHF TV channels for use in land mobile services, and by 1986 the FCC "had pretty much decided to do just that." Joel Brinkley, Defining Vision: How Broadcasters Lured the Government into Inciting a Revolution in Television (New York: Harcourt Brace, 1997), p. 8.

[3] Stifel Nicolaus, *700 MHz: Pivotal Auction* (March 2, 2007), p.10.

[4] Gregory L. Rosston, *The Long and Winding Road: The FCC Paves the Path with Good Intentions,* SIEPR POLICY PAPER NO. 01-008 (Dec. 2001); Thomas W. Hazlett and Roberto E. Munoz, *A Welfare Analysis of Spectrum Allocation Policies,* GEORGE MASON UNIVERSITY LAW AND ECONOMICS RESEARCH PAPER NO. 06-28 (Apr. 7, 2004).

services available to as many consumers as possible. On the other side, imposing requirements to serve any consumer anywhere is expensive and can deter investment – including that necessary for competitive entry – altogether. Hence, the Commission has often taken actions against state or local governments to limit build-out requirements in local telecommunications[5] or cable services.[6]

Because imposing highly costly build-out requirements would discourage otherwise efficient wireless operators from bidding on licenses or building new networks, regulations to build-out license areas have conservatively focused on population rather than geography. For example, the PCS rules grant the licensee considerable discretion over how to construct networks.[7] This approach recognizes that while extending wireless networks produces positive results, all else equal, costs are incurred by mandates that impose harsh regulatory requirements.

Hence, the rules allow several years to hit designated targets, base the targets on population (persons with access to the network) rather than geography (licensed area in which a signal can be sent and/or received), allow for a showing of "substantial service" in the event a "safe harbor" target is missed, and relax build-out goals somewhat when narrower bandwidth is utilized. These policies tend to reflect the relevant trade-offs. While more build-out is helpful, it can also impose costs that undermine efficiency and so sabotage the productive investments that create valuable wireless networks.

An example from the marketplace is seen in the distinct differences separating mobile satellite networks from cellular networks. In the former, wireless coverage has been extremely broad when measured in geographic space. Some satellite networks, such as Globalstar, offer voice and data connections across most of the world.[8] Cellular operators, in contrast, focus on supplying service in areas where people are likely to live, work, or travel. Both types of networks provide valuable services, but the clear geographical advantage of satellite systems does not imply that such networks contribute more to consumer welfare or that cellular systems be required to match the geographic scope of satellite systems.

These lessons would be lost were the 700 MHz licenses subject to fixed geographical targets. Such rules would be a sharp departure from the previous policy

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[5] See, e.g., Federal Communications Commission Press Release, *FCC Preempts Facilities Build-out Requirements In Texas; Upholds State Commission's Pro-Competitive Interpretations of Other Texas Requirements*, Report No. CC 97-50: Common Carrier Action (Sept. 26, 1997), http://www.fcc.gov/Bureaus/Common_Carrier/News_Releases/1997/nrcc7065.txt.

[6] The Commission recently found that "build-out requirements can substantially reduce competitive entry." Federal Communications Commission, *In the Matter of Implementation of Section 621(a)(1) of the Cable Communications Policy Act of 1984 as Amended by the Cable Television Consumer Protection and Competition Act of 1992, Report and Order and Further Notice of Proposed Rulemaking,* MB Docket No. 05-311 (March 5, 2007), par. 32, 40-41, http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-06-180A1.pdf.

[7] 47 CFR § 24.203.

[8] Globalstar, *Form 10-K filed for U.S. Securities and Exchange Commission* (Dec. 31, 2006);,http://media.corporate-ir.net/media_files/irol/20/203507/GSAT2006AnnualReport.pdf.

adopted by the Commission for 700 MHz licenses, which granted licensees ten years to provide "substantial service," and established a safe harbor for mobile operators supplying "four permanent links per one million people in the licensed service area" or "coverage of 20 percent of the population of the licensed service area."[9] Whereas this latter approach relied largely on market forces to determine how networks are constructed and extended over time, the suggested reform would largely dictate geographic coverage maps and impose these on an expedited basis. This regulatory intervention is unjustified by market realities, and would impose significant costs on operators and consumers.

This is true for five reasons. First, competitive market forces are the most effective guarantors that spectrum allocated to licenses is efficiently utilized. Not only have such forces been demonstrated in mobile phone markets,[10] the issuance of 700 MHz licenses will intensify those market forces, yielding an additional 60 MHz of prime radio spectrum for markets to allocate. This productive process would be undercut, however, were this bandwidth to be micro-managed by regulators.

Second, tight geographic coverage rules distort efficiency choices that benefit consumers. While yielding operators discretion as to how to achieve 25%, 50%, or 75% geographic coverage, they truncate key architectural choices by networks. The most basic trade-offs involve network operator allocation of investment dollars. Where congestion in a heavily-used cell could be alleviated by cell-splitting, investment, the geographic build-out rules would divert such funds to extending coverage to areas where little actual service would be supplied. This is the intent and effect of the regulations, which impose losses (in lost license rights) should networks invest relatively too little (as defined by the FCC's build-out rule) in rural extensions. The result is that cellular users are, on net, harmed, as resources are diverted to where they will provide less value.

Third, forcing build-out by government regulation lowers the value of networks to operators (and their investors). This reduces the prices bid for licenses, dissipating government revenues. For a given expenditure level, taxes will rise by an offsetting amount, with losses to the overall economy expected to exceed the increased tax burden by thirty percent or more, given distortions associated with taxation.[11] In order to

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[9] Federal Communications Commission, *Report and Order and Further Notice of Proposed Rulemaking,* FCC 07-72 (April 27, 2007), par. 207, http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-07-72A1.pdf .

[10] See, e.g., Federal Communications Commission, *In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, Eleventh Report,* FCC 06-142 (Sep. 29, 2006), http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-06-142A1.pdf;; Federal Communications Commission, *In the Matter of Applications of Nextel Communications, Inc. and Sprint Corporation, For Consent to Transfer Control of Licenses and Authorizations, Memorandum Opinion and Order,* FCC 05-148 (Aug. 8, 2005), http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-05-148A1.pdf; Federal Communications Commission, *In the matter of Applications of AT&T Wireless Services, Inc. and Cingular Wireless Corporation For Consent to Transfer Control of Licenses and Authorizations, Memorandum Opinion and Order,* FCC 04-255 (Oct. 26, 2004), http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-04-255A1.pdf

[11] Peter Cramton, *Lessons Learned from the UK 3G Auction,* Report Commissioned by the National Audit Office of the United Kingdom,(May 5, 2001).

estimate the magnitude of receipt reductions, one must know the penalties for non-compliance. If the "keep what you use" policy is adopted, as the FCC seems to suggest,[12] then firms winning 700 MHz licenses may treat the licenses as options that expire on build-out schedule target dates. While they have the option of retaining license rights by facilities to meet the geographic coverage, they will abandon such rights when the net present value (NPV) of incremental build-out within the license's time limits is negative. This implies that license values will be reduced by more costly (geographical) build-out rules, as option values implicit in FCC licenses fall in value. These reductions may be significant.

Bid reductions would be far larger, however, were license revocation the penalty for missing geographic build-out requirements. In this case, firms bidding for licenses, as a first approximation, reduce their maximum bids by the NPV of the more costly (geographical) build-out rules. In essence, winning bids would be lowered by the expected cost of building out network facilities, not themselves profitable, in order to retain FCC licenses.

The magnitude of these constraints is illustrated in calculations undertaken by business and engineering analysts at Verizon Wireless (VZW). They have estimated the cost of moving to the proposed geographic targets in lieu of the population-based path to "substantial service" for a hypothetical national carrier with an existing network utilizing a 20 MHz license (allocated 700 MHz spectrum) in a CDMA architecture. The simulation conducted projects how many additional base stations would be deployed to fulfill build-out obligations under the proposed area rules as opposed to previously employed population build-out rules, calculating costs of these additional sites. Cash flows are discounted at ten percent. Results are summarized in Table 1.

TABLE 1. ESTIMATED COSTS TO MEET GEOGRAPHY-BASED BUILD-OUT

Includes Govt Land	Cumulative Cap Ex (Geog build.; 8 yrs)	NPV difference (vs. pop-based build)	Incremental sites	% incremental pops covered
YES	$5.9 B	$2.4 B	~14.1 K	9.81%
NO	$3.7 B	$1.3 B	~8.7 K	8.25%

Source: Margaret P. Feldman, Vice President - Business Development, Verizon Wireless.

Depending on whether or not government-owned lands are included in the geographic requirements, VZW forecasts added costs of between approximately $1.3 billion and $2.4 billion *per* national 700 MHz network. These estimates include only the cost of cell site deployment, excluding capital expenditures for maintenance of the network. Further, costs may be substantially higher for an entrant with little or no existing infrastructure. With 60 MHz of available spectrum, the equivalent of three national networks (or more) could emerge from the 700 MHz license auction. Total

[12] Federal Communications Commission, *Report and Order and Further Notice of Proposed Rulemaking*, FCC 07-72 (April 27, 2007), par. 212-216; http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-07-72A1.pdf.

revenues at auction are forecast to fall between $10 billion and $15 billion by the Congressional Budget Office,[13] meaning that under a license revocation rule geographic requirement costs could dissipate half the value of 700 MHz licenses, or more. Some revenues would predictably be generated from bids for particular licenses where geographic build-out was a relatively low-cost constraint, from bidders who expected that build-out rules would change, or from parties that anticipated rules would not be effectively enforced. Even under these adjustments, the federal government could still lose billions of dollars in revenue from the regulatory change.

Fourth, the removal of licenses (or parts of licenses) from active participants in the marketplace is a costly procedure. This is particularly so when the licenses grant users wide flexibility over services and technologies, as proposed for 700 MHz licenses. When such liberal rights are held by firms, the spectrum is available for use by others without regulatory barriers. Where one technology or business model does not admit to profitable opportunities, a licensee would (without regulatory constraints) elect not to extend services there, but would remain open to new possibilities that develop with changing demands, entrepreneurial innovation, or technological advance. "Reclaiming" spectrum by transferring rights back to the government removes resources from where market competitors can access them. Providing flexible use by licensees and, via secondary markets, their assignees, is the superior alternative, as seen in the intense 3rd party use of cellular spectrum.[14]

Fifth, and finally, the policy to force geographical build-out over population build-out is directly anti-consumer. It seeks to divert network resources from where users demand service to where regulators prefer to deploy them. Competitors and even monopolists have an economic interest in serving areas where the revenues generated exceed the incremental costs of service. Were license revocations to accompany the geographical build-out rules the FCC is considering, it would not only reduce license bids by billions of dollars, it would reduce investments in highly populated markets where demands are the most intense. An irrational use of resources results, where networks over-invest in rural geographic coverage while under-investing in service quality enhancements in urban, suburban, and exurban areas.

III. INCUMBENT ELIGIBILITY LIMITS WOULD BE UNFOUNDED AND WOULD PRECLUDE A COMPETITIVE AUCTION

The Commission has also asked for input on the question of whether, "to encourage the entry of new competitors," the Commission should bar "incumbent local exchange carriers (ILECs), incumbent cable operators, and large wireless carriers from

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[13] Stifel, Nicolaus & Co., *700 MHz: A Pivotal Auction* (March 2, 2007), p. 10.

[14] See, e.g., Thomas W. Hazlett, *Wireless Carterfone: An Economic Analysis,* Submitted to the Federal Communicationas as an attachment to Verizon Wireless Opposition to Skype Petition (Apr. 30, 2007).

eligibility for licenses in the 700 MHz Band."[15] There exists abundant evidence on this question, enabling the Commission to proffer a pro-consumer policy that permits all firms – incumbents and entrants – to bid for 700 MHz licenses.

The economic analysis is framed by the standard microeconomic model of market structure. All else equal, firms produce higher outputs and charge lower prices to customers where there is more competition – i.e., less concentration. But, emphatically, this does not suggest that public policy should promote deconcentration *at all costs*. Where there are economies of scale or scope, forcing enterprises into smaller configurations reduces efficiency, and these productive losses will offset gains from enhanced inter-firm rivalry. More generally, competitive markets tend to select structures that produce at low cost, with more efficient firms gaining market share at the expense of the less efficient. Imposing a cookie-cutter deconcentration policy on markets would suppress this dynamic process, saddling consumers with higher costs and less valuable product choices.

The optimal market structure is, then, one in which dynamic rivalry is given wide scope, just up to the point at which consolidation demonstrably restricts output and raises price. If intervention comes too early, it deprives society of the gains from rivalry between firms, economies of scale, and of the dynamic process by which consumers effectively determine market structures via their purchases. The evidence is contained in abundant market data revealing the importance of scale economies, in numerous FCC rulings, and in the observed outcome of the 2006 Advanced Wireless Services (AWS) license auction at the FCC.

Each of these is discussed in order. What the evidence shows is that U.S. consumers have benefited enormously from the growth of large, integrated national cellular carriers. As the leading networks have expanded they have increased the national concentration ratio, as measured by the Herfindahl-Hirschman Index (HHI), and simultaneously reduced prices. The FCC, analyzing competition in the sector, abolished the 45 MHz Spectrum Cap as of January 1, 2003,[16] and approved two large mergers in 2004-2005,[17] explicitly finding that competition was sufficiently robust that consolidation would help, rather than hurt, U.S. consumers. The continued, post-merger drop in cellular service pricing supports that analysis.

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[15] Federal Communications Commission, *Report and Order and Further Notice of Proposed Rulemaking*, FCC 07-72 (April 27, 2007), par. 221, http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-07-72A1.pdf.

[16] Federal Communications Commission News Release, *FCC Announces Wireless Spectrum Cap to Sunset Effective January 1, 2003* (Nov. 8, 2001); http://www.fcc.gov/Bureaus/Wireless/News_Releases/2001/nrwl0129.html .

[17] Federal Communications Commission, *In the Matter of Applications of Nextel Communications, Inc. and Sprint Corporation, For Consent to Transfer Control of Licenses and Authorizations, Memorandum Opinion and Order,* FCC 05-148 (Aug. 8, 2005), http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-05-148A1.pdf ; Federal Communications Commission, *In the matter of Applications of AT&T Wireless Services, Inc. and Cingular Wireless Corporation For Consent to Transfer Control of Licenses and Authorizations, Memorandum Opinion and Order*, FCC 04-255 (Oct. 26, 2004), http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-04-255A1.pdf.

The policy to ban incumbent bidding has, effectively, already been analyzed in the more pointed context of mergers, where no new spectrum capacity is being added to the aggregate market. In the merger context, incumbent operators purchase carriers with overlapping (in-market) licenses. To permit large wireless operators to merge, but not permit other incumbent carriers or cable operators to acquire additional bandwidth, constitutes an ad hoc policy reversal.

There is little need for theoretical conjecture. In the 2006 AWS license auctions, liberal rules permitted incumbent bidding without constraint. The results demonstrate that both entrants and incumbents bid successfully for licenses. Moreover, the incumbent that bid most successfully – T-Mobile – had been the most "spectrum constrained" of the large incumbent wireless operators. It is now using the added bandwidth, purchased at a cost of $4.2 billion, to build a $2.7 billion next generation broadband network.[18]

To ban incumbent bidding would be to deprive millions of wireless customers from the efficiencies that large networks uniquely supply. It would revert to the anti-consumer "competition policy" of years past, when – analogous to Industrial Policy – government handicapped markets and favored certain competitors on the grounds that they would help promote competition. In fact, this strategy is now discredited as an approach that favors "competitors over competition."[19] By economic theory, by the Commission's own analysis, and by the demonstrated outcomes seen in wireless auctions and markets today, it would destroy productive opportunities and raise prices to consumers.

A. *Market Evidence on Economies of Scale and Scope.*

Between 1996 and 2006 U.S. wireless markets underwent major transformation. Commercial Mobile Radio Service (CMRS, encompassing cellular, PCS, and SMR) licenses had been widely dispersed.[20] Through a costly process of mergers and acquisitions, over 50,000 licenses were aggregated into a market that, by 2001, featured six large national networks and several regional carriers. The national carriers were reduced from six to four in 2005.

All through this period prices declined sharply. In 1996, ARPM was approximately 51¢; in 2006, it had fallen to just 7¢. See Figure 1. The HHI, based on national revenues, was concomitantly increasing, rising from about 900 in 1996 to about 2000 in 2005. Hence, with consolidation came price decreases. This is entirely consistent with the interpretation that national wireless networks are acquiring licenses by auctions and mergers in order to more efficiently compete with rivals.

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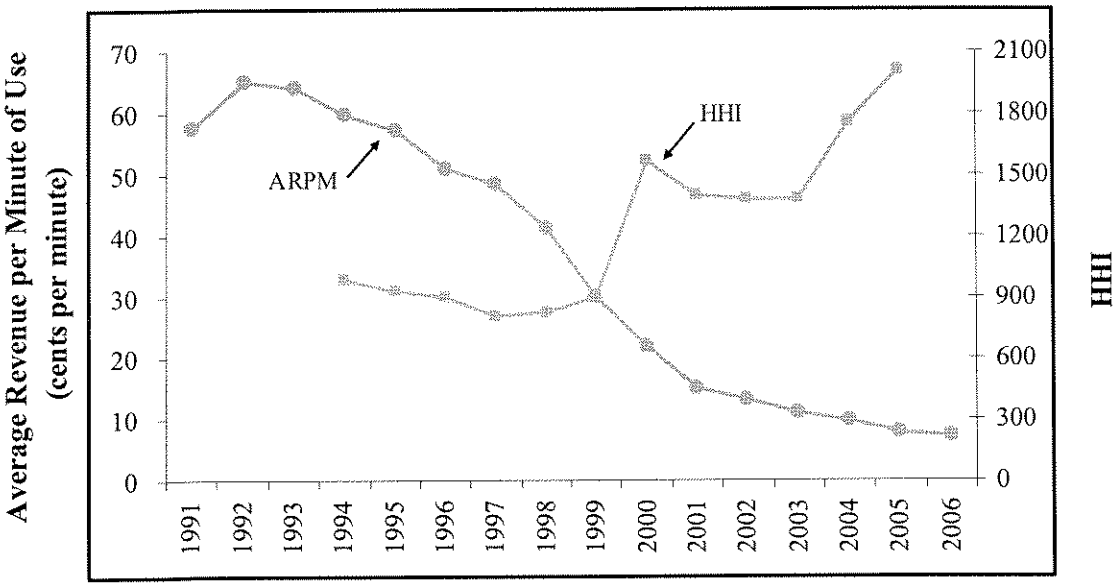
[18] Laurie Sullivan, *T-Mobile to Upgrade Multimedia Services,* TECHWEB (Oct. 6, 2006); http://www.techweb.com/showArticle.jhtml?articleID=193105175&cid=RSSfeed_TechWeb.

[19] William J. Kolasky, *What is Competition?,* Address Before the Seminar on Convergence Sponsored by the Netherlands Ministry of Economic Affairs (Oct. 28, 2002), http://www.usdoj.gov/atr/public/speeches/200440.htm#N_9.

[20] Thomas W. Hazlett, *Is Federal Preemption Efficient in Cellular Phone Regulation?* 56 FEDERAL COMMUNICATIONS LAW JOURNAL 155 (Dec. 2003), pp. 193-205.

FIG. 1. U.S. WIRELESS PRICES PER MINUTE AND HHI IN THE WIRELESS SECTOR



Sources: CTIA, *Semi-Annual Wireless Industry Survey* and *Wireless Quick Facts*; FCC, annual CMRS reports. *Notes:* Total revenues, including local service and roaming, are divided by total minutes of use, including total local and roaming calls, to calculate average revenue per minute. HHIs are based on subscribership.

This evidence is inconsistent, however, with the view that carriers are acquiring assets in order to restrict output and raise price. Instead, they strongly suggest that firms are expanding their scope in order to exploit economies of scale. In gaining access to incremental bandwidth, they are able to expand networks, increase capacity, and better compete for business. In the process, prices drop – exactly the pro-consumer outcome policy makers should aim for.

Today the FCC finds the market is highly competitive as evidenced by "more choice, better service, and lower prices."[21] In its most recent annual CMRS report, the FCC summarized industry structure this way:

> … although the mobile telephone market has become more concentrated as a result of these mergers, none of the remaining competitors has a dominant share of the market, and the market continues to behave and perform in a competitive manner.[22]

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[21] Kevin J. Martin, *Statement of Chairman Kevin J. Martin, Re:Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, FCC 06-142 (Sep. 29, 2006),* http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-06-142A2.pdf .

[22] Federal Communications Commission, *In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, Eleventh Report*, FCC 06-142 (Sep. 29, 2006), http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-06-142A1.pdf.

B. *Pro-Competitive Results of the AWS License Auction.*

The recently conducted AWS license auction reveals why incumbent bidding bans are unneeded, on the one side, and highly counter-productive, on the other. In that auction, incumbents were permitted to bid without explicit constraint, although antitrust and FCC "public interest" review supply backstop regulatory oversight. What developed was a rational pattern in which frequency rights were distributed to those enterprises that could efficiently utilize them.

There are two views of incumbent bidding. One suggests that incumbents will acquire frequency rights largely to deny competitors the opportunity to compete. This implies that the largest carriers (in subscribers and revenues), having the largest payoff from restricting entry, will be the biggest purchasers of licenses.[23] The alternative view is that incumbent carriers, of any size, will purchase licenses for productive purposes. This would imply that the enterprises bidding most aggressively are not necessarily the largest suppliers but the firms with the most intense demand for new bandwidth.

The bidding seen in the AWS auctions was consistent with the latter view and inconsistent with the former. The largest and most aggressive bidder among the incumbents was T-Mobile, which emerged as the leading purchaser in the auction. While a wireless operator, T-Mobile was the smallest of the top four. Moreover, it was widely known to be severely spectrum-constrained.[24] Its footprint averaged only about 27 MHz in the Top 60 markets, easily the lowest among the four leading carriers.[25] This limited the network, preventing it from executing a broadband (3G) upgrade.[26] In the auction, T-Mobile emerged with the largest national coverage, at 6.6 billion MHz-pops, or 26% of the AWS total, spending the most of any bidder at $4.2 billion.[27] The company quickly announced, post-auction, that it would construct a high-speed wireless network using the AWS bandwidth, investing a reported $2.7 billion (beyond license costs).[28] See Table 2.

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[23] The free rider problem faces carriers purchasing spectrum not for efficient utilization but to limit competition. The benefits of reduced competition are distributed to all incumbents, while the costs are incurred solely by the licensee. This gives the largest carriers, particularly in terms of spectrum holdings, the largest incentives for anti-competitive conduct.

[24] Drew Cullen, *T-Mobile USA Splashes the 3G Cash*, THE REGISTER (Oct. 6, 2006); http://www.theregister.co.uk/2006/10/06/t-mobile_usa_3g_network/ . See also, Ken Belson, *T-Mobile to Spend $2.7 Billion to Offer Advanced Services*, THE NEW YORK TIMES (Oct. 7, 2006).

[25] Legg Mason, *Spectrum Catalogue Spring 2005* (March 16, 2005).

[26] Frank Bulk, *T-Mobile Up and Down With 3G,* NETWORK COMPUTING (Oct. 26, 2006), http://www.networkcomputing.com/channels/wireless/showArticle.jhtml?articleID=193400198.

[27] Federal Communications Commission, *AWS-1 Auction Data*, http://wireless.fcc.gov/auctions/default.htm?job=auction_summary&id=66 .

[28] Laurie Sullivan, *T-Mobile to Upgrade Multimedia Services,* TECHWEB (Oct. 6, 2006); http://www.techweb.com/showArticle.jhtml?articleID=193105175&cid=RSSfeed_TechWeb.

TABLE 2. AWS LICENSE AUCTIONS: RANKINGS AMONG TOP FOUR WIRELESS CARRIERS

	Size Rank (4Q2006 subs)	*Bandwidth Rank (mean)**	*MHz-pops Rank (of AWS total)*	*AWS Bid Rank ($Bil.)*
Cingular	1 (61 mil.)	1 (57 MHz)	3 (9%)	3 (1.334)
Verizon	2 (59 mil.)	3 (37 MHz)	2 (15%)	2 (2.808)
Sprint-Nextel	3 (53 mil.)	2 (50 MHz)	4 (0%)	4(0)
T Mobile	4 (25 mil.)	4 (27 MHz)	1 (26%)	1 (4.182)

* Raw mean for top 60 U.S. markets.

Sources: Legg Mason, *Spectrum Catalogue Spring 2005* (March 16, 2005); FCC, *AWS-1 Auction Data*; http://wireless.fcc.gov/auctions/default.htm?job=auction_summary&id=66; Standard & Poor's, *Industry Surveys, Telecommunications: Wireless* (March 22, 2007), p. 11.

The largest network, with respect to both customers and licensed bandwidth, was Cingular (now renamed AT&T). It won far less, just nine percent of total MHz-pops, than three other bidders, including an entrant into wireless, SpectrumCo. Sprint-Nextel, with the second largest pre-AWS spectrum portfolio, entered the auction only as a minority partner with a non-attributable (under FCC rules) 5% share in SpectrumCo. Even if this share is attributed to Sprint, it accounted for just 1% of AWS MHz-pops. In contrast, Verizon Wireless was much more active in the auction, acquiring 15% of MHz-pops. With 59 million subscribers and significantly less bandwidth than either Cingular or Sprint-Nextel, it was no surprise to industry analysts that Verizon Wireless would seek to augment its spectrum holdings.[29]

This pattern clearly suggests that incumbent bidding was driven by spectrum demand rather than entry deterrence. Behavior among the wireless incumbents is not explained by anti-competitive motives, which would have had Cingular buying the most and T-Mobile the least.[30] Instead, the firms with the narrowest bandwidth – T Mobile and Verizon Wireless – bid the most aggressively, reflecting the pressure of competitive market forces and helping to expand service to the public.

Artificial rules favoring some and constraining others would limit the ability of market competition to put spectrum resources to where they will have the highest social value. This conclusion is supported by the fact that in both the 1995 PCS auction (A and B) and the 2006 AWS auction, "incumbents" were able to enter the wireless market by purchasing licenses. Both the 1995 PCS entrant, Sprint (then a local and long distance provider), and the 2006 AWS entrant, SpectrumCo (a consortium of cable TV operators) would be identified as "incumbents" under the policy offered for consideration. Such discriminatory rules would visibly weaken opportunities for efficient rivalry, protecting "competitors" at the expense of actual competition.

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[29] Kim Randolph, *Analysis of Auction 66 - Advanced Wireless Services (AWS) Spectrum*, BIAFN (Sep. 6, 2006); http://www.bia.com/data_perspective_090606.asp.

[30] This outcome would have been necessary, if insufficient, to imply the anti-competitive scenario. There are, surely, efficiency reasons which might lead market leaders to expand capacity.

IV. ECONOMIC FLAWS OF THE FRONTLINE PROPOSAL

The Commission is also considering a proposal by Frontline to split in half the 20 MHz license allocated Upper 700 MHz bandwidth. One license allocated 10 MHz would be available for flexible use. Another license, allocated the remaining 10 MHz, would be regulated for dual use under a network sharing agreement to be executed post-auction. The licensee (selected by competitive bidding) would be constrained to build a nationwide wireless broadband network for public safety agency use. Such agencies would be able to contract (or not) with the network. The network would, as well, be able to serve other (non public safety) demand, but public safety users would be given priority access over others. The network would be constrained to offer service only on a wholesale basis, and to maintain "open access" policies allowing users to deploy the devices or applications of their choice.

Mandating this particular structure will achieve little of the gains possible for both public safety and commercial users. Competitive markets for wireless voice and data service permit diverse users and operators to intensely share spectrum and infrastructure. In addition, it accommodates innovative forms of market organization. Contractual arrangements to create and utilize network overlays produce innovative services for millions of subscribers, providing incentives for financial markets to fund the long-term capital investments that users desire. Competition between carriers organizes spectrum access such that new models continually emerge, are tested, and survive or perish – consumers selecting the outcomes they prefer.

In lieu of this consumer-driven discovery process, the Frontline proposal asks the FCC to dictate its preferred structure as terms of a license. This rigid regulatory approach has repeatedly stifled rather than advanced innovation. Imposing a regulatory model deprives the licensee – and its customers -- of the flexibility needed to find and adopt the most efficient methods.

The wireless market in the U.S. already hosts a thriving wholesale market where billions of minutes of use are purchased by retailers – MVNOs (mobile virtual network operators). By contract, and without regulation, entrants develop (with equipment manufacturers) their own phones, adding (with third party vendors) their own applications. Wireless customers connect via the networks of operators like AT&T, Sprint-Nextel, T-Mobile or Verizon Wireless, each of which competes directly for retail business with MVNOs. At least 50 such "virtual" rivals were identified as of November 2006, accounting for about 15 million subscribers.[31] The wholesale model thrives, without license mandates.

Prior to federal pre-emption of state-level cellular rate regulation in 1993-94, many states (like California and New York) attempted to create such a wholesale market. This effort was unsuccessful. Moreover, when rate regulation ended, rates did not rise.

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[31] Standard & Poor's, *Industry Surveys, Telecommunications: Wireless* (March 22, 2007), p. 22-23.

At best, rate regulation had no effect on rates even in the cellular duopoly environment.[32] Now, with competition introduced via additional FCC licenses, unregulated prices average 7¢ per minute, about a 75% decline from the pre-deregulation trend.[33]

The FCC itself attempted to construct a wholesale market in wireless services. In the 700 MHz guard bands, the Commission created licenses that were encumbered by requirements governing "Guard Band Managers."[34] This licensee was to lease spectrum to multiple third parties, on the premise that this was the "most effective and efficient way to manage this spectrum while protecting public safety operations in adjacent bands."[35] Bandwidth was to be made available to system operators or end users via "spectrum user agreements" subject to Commission oversight. No operator affiliated with the Band Manager was to lease more than 49.9 percent of the bandwidth allocated to the license in a geographic area.[36] Band Managers were also restricted to aggregating no more than 4 MHz of spectrum.

The policy proved ineffectual. Imposing a business model that failed to attract users was the first policy error; depriving the market of the flexible options needed to correct this failure was the second. The net result was that regulation lowered the social value of wireless services. Despite the fact that the "wholesale model" appeared a way to promote innovation to regulators in the 1990s, in 2006 the Commission found that "there are few systems operating in the Guard Bands." Indeed, of seven Guard Band Managers, only one reported *any* economic activity; that one Manager reported the existence of just six spectrum user agreements.[37] The lack of use prompted the FCC to call for input on ways to reallocate the spectrum. The failure was predictable, given the command-and-control approach embedded in the policy. As Greg Rosston, a former FCC Deputy Chief Economist, wrote in 2001:

> [The] problem was to mandate that guard band licensees be 'guard band managers.' The Commission put two main requirements on guard band

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[32] Jerry Hausman, *Mobile Telephone,* in M.E. Cave, S. Majumdar, and I. Vogelsang, eds., Handbook of Telecommunications Economics, Volume 1 (North Holland; 2002) pp. 563-604.; William B. Shew, *Regulation, Competition, and Prices in the U.S. Cellular Telephone Industry*, ENSAE-CREST Conference on the Economics of Radio-Based Communications (1994); Keta L. Ruiz, *Pricing Strategies and Regulatory Effects in the U.S. Cellular Telecommunications Duopolies*, in G. Brock, ed., Towards a Competitive Telecommunications Industry: Selected Papers from the 1994 Telecommunications Policy Research Conference (Mahway, NJ: Lawrence Erlbaum; 1994), pp. 13-46.

[33] The most generous downward trend in pre-deregulation prices using annual data is found by extrapolating mean prices from 1992 to 1994. This trend predicts a 2006 price (equal to mean revenue per minute) of 28¢. CTIA-The Wireless Association, *Semi-Annual Wireless Industry Surveys*, 1991-2006. See also, CTIA-The Wireless Association, *Wireless Quick Facts* (Dec. 2006); http://www.ctia.org/media/industry_info/index.cfm/ AID/10323 .

[34] Federal Communications Commission, *In the Matter of Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules, Second Report and Order,* FCC 00-90 (Mar. 9, 2000), par. 25.

[35] Ibid. par. 30.

[36] Ibid, par. 59.

[37] Federal Communications Commission, *In the Matter of Former Nextel Communications, Inc. Upper 700 MHz Guard Band Licenses and Revisions to Part 27 of the Commission's Rules, Notice of Proposed Rulemaking,* FCC 06-133 (Sept. 8, 2006), par. 13.

> managers: that they not provide commercial service to the public; and that they lease a majority of their spectrum to unaffiliated third parties. Rather than letting the market determine whether band managers would be a good idea and sustainable in a market, the Commission imposed that structure by requiring the leasing of a majority of the spectrum to third parties.[38]

The Frontline proposal ignores valuable lessons and pleads for regulators to once again determine market structures. The need for extensive FCC regulatory oversight is conceded; the proposal calls for a network sharing agreement to be executed, and for this agreement to be reviewed and accepted by the FCC. The terms and conditions on which a network owner makes assets available for the use of others are inherently contentious. The plan put forward attempts to remedy this by excluding the network from any integration into retail services, but neither does this eliminate conflicts nor does the limitation come without cost. The Guard Band approach also sharply limited vertical integration, requiring separate subsidiaries and (as noted) requiring most spectrum use be via unaffiliated third parties. The "forced marriages" that the FCC and state regulators oversaw in the post-Telecommunications Act (fixed) telecommunications market suggest that such problematic episodes are to be avoided where useful alternatives are available.[39]

The alternative to the Frontline proposal is apparent. If there are enterprises or agencies that believe that dual use networks can efficiently service public safety and commercial users, they should seek to execute such network sharing approaches in the marketplace. While the FCC can and should accommodate all innovative approaches with liberal policies making spectrum widely available for productive activity, it would be doing the opposite of that if it were to remove 10 MHz of valuable bandwidth, quarantining it in a highly regulated business model designated by FCC rulemaking.

V. IMPOSING AN "OPEN ACCESS" REGIME IS ANTI-CONSUMER

The FCC asks for comment on "open access" rules in the 700 MHz proceeding in two respects. The first is as part of the Frontline proposal, which asks the FCC to mandate that the 10 MHz "E Block" license they advocate for commercial/public safety use be constrained by rules permitting users to deploy any device or application on the resulting network.[40] The second "open access" question concerns a broader requirement that other licenses 700 MHz licenses contain similar provisions.[41] I discuss these two sets of issues in order.

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[38] Gregory L. Rosston, *The Long and Winding Road: The FCC Paves the Path with Good Intentions,* SIEPR POLICY PAPER NO. 01-008 (Dec. 2001), p. 11.

[39] See, e.g., Richard A. Epstein, *Takings, Commons, and Associations: Why the Telecommunications Act of 1996 Misfired*, 22 YALE JOURNAL ON REGULATION 2 (Summer 2005), p. 315.

[40] Federal Communications Commission, *Report and Order and Further Notice of Proposed Rulemaking* (Apr. 27, 2007), par. 275 (footnote omitted).

[41] "The *Ad Hoc* Public Interest Spectrum Coalition supports Frontline's proposal to make the 'E Block' available on an open access basis and requests that the Commission go further, making at least three of the 700 MHz commercial licenses (or 30 megahertz of spectrum) available on such a basis." Ibid., par. 276 (footnote omitted).

A. *"Open Access" Regulation for the "E Block" License.*

The suggestion that the E Block license requested by Frontline submit to "open access" rules establishes that such a request is, to say the least, ill-formed. The very concept of the hybrid system, serving commercial demands along with public safety during normal operations, while shifting to a public safety network that excludes non-essential commercial traffic during emergencies, relies on discrimination between traffic flows. It is explicitly offered as a platform that will – by network-imposed protocols – decide when, where, and how some are accommodated while others are denied access.

This prioritization system is not an incidental aspect of the proposed network, but its core feature. The ability of such a wireless system to control traffic – while frontally conflicting with "open access" – can make the network more valuable. It is only because mission-critical communications are guaranteed priority, as determined by the network, that the functionality of the public safety mission can be supplied. Hence, Frontline's proposal is not only contradictory, it stands as a classic illustration of why network prioritization offers value to consumers and society.

What is important about the network control over traffic flows is not that they are "open" by some regulatory formulation, but that consumers have reasonable knowledge about the services they are purchasing, and that policymakers seek to promote competition among platforms in order to improve price and product choices. There is no consumer interest in categorically pursuing more "openness," just as Frontline's argument for a hybrid network – made possible via network traffic control – establishes. It is not wrong, and should not be illegal, for a network to offer service that is interruptible for, say, public safety users – just as Frontline proposes. But it is a blunt violation of "open access."

B. *"Open Access" Regulation for 700 MHz Licenses Generally.*

"Open access" is an equally unwarranted policy when applied to 700 MHz licenses generally. The argument that government should impose mandates on competitive wireless carriers, analogous to the plea for broadband regulation contained in Skype's recent petition to the FCC,[42] ignores both the rationale for access regulations and the process whereby consumer benefits are generated by market competition.

The analogies such regulatory requirements rely on date to the *Hush-a-Phone*[43] and *Carterfone*[44] decisions in 1956 and 1968, respectively. These legal rulings, the first in federal court and the second at the FCC, are portrayed by "open access" champions as

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[42] Skype Communications, *In the Matter of Skype Communications S.A.R.L., Petition to Confirm A Consumer's Right to Use Internet Communications Software and Attach Devices to Wireless Networks,* RM-11361 (Feb. 20, 2007).

[43] *Hush-a-Phone Corporation and Harry C. Tuttle, Petitioners, v. United States of America and Federal Communications Commission, Respondents, American Telephone and Telegraph Company et al., and United States Independent Telephone Association, Intervenors*, 238 F.2d 266 (DC Cir. 1956).

[44] *Use of the Carterfone Device in Message Toll Telephone Service*, 13 FCC 2d 420 (1968).

regulatory interventions that over-ruled unregulated market forces. Both imposed requirements on the pre-divestiture AT&T that permitted customers of the phone company to use third party-supplied applications. Left to their own devices, no pun intended, AT&T would have had the opportunity and incentive to anti-competitively restrict such access, foiling both consumer choices over devices and applications in the short run and the development of competitive networks over time.

In fact, AT&T operated under conditions of regulated monopoly. Both elements were key to the rationale as to why AT&T might seek to impose inefficient vertical restrictions (user access rules and device limits). The iconic rulings cited as precedent were not regulatory interventions into unregulated, or under-regulated, markets. Rather, they were regulatory changes within a system where market forces played only a limited role.

Today's wireless markets are neither monopolistic nor regulated. Firms do not enjoy anti-competitive opportunities to restrict the use or functionality of their networks. Yet, they enjoy strong incentives to organize the use of the networks to maximize value, and this often leads them to coordinate the manner in which users access their systems. Just as in the Frontline public safety prioritization system, this can lead to restrictions on particular users. Actual markets reveal that firms without any plausible anti-competitive motive – including small rural WISPs (wireless Internet Service Providers), university LANs, and upstart wireless broadband providers such as Clearwire – impose "acceptable use policies" or other restrictions on subscribers analogous to, or harsher than, large incumbent wireless networks.[45]

Were such carriers to exert anti-competitive control of markets, antitrust enforcement at the federal and state levels, as well as via private litigation, would be encouraged to intervene. "Open access" rules imposed by the FCC must be justified on the failure of that system of regulation to adequately promote consumer welfare. On analysis of the marketplace data, however, the argument fails to meet this burden.

Advocates of "open access" regulation assert, alternatively, that such rules categorically improve consumer choice and hence create social value. This argument is rejected by myriad marketplace examples – including those following broadband deregulation at the FCC – demonstrating that vertical coordination of networks is often pro-consumer. Take the Apple iPOD/iTUNEs innovation. Developed by Apple to provide a preferred platform for downloading music and videos, it eclipsed the "open" approaches by peer-to-peer (P2P) applications such as Napster and Kazaa.[46]

The Apple platform requires customers to pay Apple's prices and conform to Apple's rules. Among these rules are device exclusivity; iPODs only play iTunes

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[45] Thomas W. Hazlett, *Wireless Carterfone: An Economic Analysis,* Attachment to Verizon Wireless Opposition to Skype Petition (filed at the FCC Apr. 30, 2007). See also Clearwire, *Acceptable Use Policy* (Mar. 8, 2005), http://www.clearwire.com/company/legal/aup.htm .

[46] Jack Goldsmith and Tim Wu, Who Controls the Internet? Illusions of a Borderless World (Oxford University Press; 2006), pp. 120-21.

content. This has stirred controversy among "open access" advocates, who have attacked the Apple platform as anti-competitive. Yet, multiple "open" MP3 players are available using non-Apple equipment and interfaces. Microsoft provides an operating system used by Sony and Samsung, e.g. Consumers choose between platforms.

Because wireless networks are shared facilities, there naturally arise coordination issues. Many of these are addressed by network engineers, who plan infrastructure to accommodate expected demands. Some are solved by vendors, who contract with carriers to provide handsets and base stations that rationally allocate airwave access. Others are handled by price menus, which ration access to those users willing to pay fees. Still others are regulated by behavioral rules that set forth what types of activities subscribers may conduct or what devices they may use. All are methods to organize network sharing. What enforces efficiency on the network rationing rules is that carriers earn profits based on whether their rules create benefits in excess of costs.

In competitive, unregulated markets these incentives are apparent. They work to lead networks to, on the one hand, invest heavily in the creation of new opportunities for customers, and on the other, to provide the most valuable set of services that such networks will yield. Restrictions on users make no economic sense if they cost subscribers more than networks gain. And such gains must be based on the creation of additional value to consumers of the network.

This is why the market for third party mobile applications is exploding.[47] It is why the first "killer app" in wireless data occurred in NTT DoCoMo's "walled garden," a carefully organized platform for content that economized on scarce bandwidth and became a huge hit with Japanese consumers.[48] It is also why mobile carriers are investing billions of dollars – each – in advanced broadband networks, systems that now serve about 11 million subscribers.[49] Only by granting network operators a full complement of property rights over the valuable assets they create will consumers get the full measure of innovation possible.

A useful example is seen in the emergence of Clearwire, an entrant into wireless broadband backed by cellular entrepreneur Craig McCaw, Intel, Bell Canada, Motorola, and public investors, who have collectively contributed about $1.7 billion in firm

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[47] For instance, well-known game developers and publishers such as Microsoft, Electronic Arts, and Konami are heavily investing in mobile gaming, where revenues are expected to increase from $0.72 billion in 2006 to $1.32 billion by 2010. See Standard & Poor's, *Industry Surveys, Telecommunications: Wireless* (March 22, 2007), p. 20. Mobile social networking software such as Twitter, Dodgeball, Radar, Kyte, etc., attracts an increasing number of users. See Brad Stone and Matt Richtel, *Social Networking Leaves Confines of the Computer,* N.Y. TIMES (Apr. 30, 2007), http://www.nytimes.com/2007/04/30/technology/30social.html?pagewanted=1&ei=5070&en=7bebdfd3beef66d0&ex=1179979200. See also, Andrew Lavallee, *Friends Swap Twitters, and Frustration,* THE WALL STREET JOURNAL (Mar. 16, 2007), http://online.wsj.com/public/article/SB117373145818634482-ZwdoPQ0PqPrcFMDHDZLz_P6osnI_20080315.html?mod=blogs.

[48] Hazlett, *Wireless Carterfone*, op. cit.

[49] Federal Communications Commission, *High-Speed Services for Internet Access: Status as of June 30, 2006* (Jan. 31 2007) , http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-270128A1.pdf.

equity.[50] The company reports serving about 258,000 U.S. subscribers in 38 markets[51], and has ambitious plans for nationwide coverage.[52] It offers wireless broadband service, at speeds up to 1.5 mbps, using 2.5 GHz spectrum.[53]

It is doubtful that Clearwire, a fledgling entrant, exercises market power. Yet it exerts far-reaching control over how its network is used. Critics see this approach as ill-fated and anti-productive. One criticizes Clearwire this way:

> ... Clearwire routinely blocks ports, and in doing so, customers will conclude that Clearwire's Internet Access "doesn't work" for the things *that they, the customer wants to do...* like using Skype to talk free to their kids or relatives living overseas.[54]

The critic may be right; Clearwire (and McCaw, Intel, Motorola, Bell Canada, and thousands of public investors) may be wrong about the business model that works. Three points are directly relevant for public policy.

(1) *Clearwire* thinks its approach is correct. That being the case, Clearwire – which no doubt has given the matter much thought, monitors consumer behavior carefully, and modifies its policies accordingly – is far more likely to invest $1.7 billion in a national network given the ability to make such choices. Were regulators to appropriate such rights, and impose an "open access" model, the investors creating such opportunities would step back. Fewer networks would be created.

(2) Clearwire does not possess market power. That means that the good faith estimate made by the firm about the optimal form of network sharing rules represents an efficiency rationale for limiting customers' network usage. This suggests that categorical rules forbidding such limits will cause collateral damage, eliminating such efficiencies.

(3) The market, with consumers choosing among platforms, will determine the success of Clearwire's policy. Even critics base their argument on what they see as the underlying reality, that consumers prefer "open" networks, and that "walled gardens" must adapt or die. That is the correct formulation of a policy position favoring competition over regulation. It permits trial and error, and so empowers both entrepreneurs and consumers. But it does not impose an outcome.

In summary, it is an illusion that "open access" is categorically pro-consumer.

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[50] Nicole Ridgway, *Craig McCaw's WiMax Venture May Be His Riskiest,* SMART MONEY (May 17, 2007); http://www.smartmoney.com/email/index.cfm?emailcontent=/Techsmart/index.cfm?story=20070517 .

[51] *Clearwire Facts*, http://www.clearwire.com/company/facts.php.

[52] Standard & Poor's, *Industry Surveys, Telecommunications: Wireless* (March 22, 2007), p. 8.

[53] Federal Communications Commission, *In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, Eleventh Report*, FCC 06-142 (Sep. 29, 2006), par. 30; http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-06-142A1.pdf.

[54] Steve Stroh, *Broadband Wireless Internet Access IS A Commodity*, BROADBAND WIRELESS INTERNET ACCESS / WIMAX NEWS (Feb. 8, 2007), http://www.bwianews.com/2007/02/broadband_wirel.html.

Indeed, the Internet's own development is testimony to the importance of maintaining loose regulatory constraints that permit businesses to offer a range of platforms. Typically, service providers, including websites offering key applications, impose user restrictions that are designed to make shared resources more valuable. The user agreement posted by eBay, is one such example: "If you do not agree to be bound by the terms and conditions of this Agreement, do not use or access our services,' warns eBay."[55] Service providers determine whether or not the rules imposed are profitable; the success or failure of alternative business models in attracting customers determines which are efficient.

[55] Jack Goldsmith and Tim Wu, Who Controls the Internet? Illusions of a Borderless World (Oxford University Press, 2006), p. 137.

ATTACHMENT B

DECLARATION OF KAREN M. WREGE

I, Karen M. Wrege, hereby declare as follows:

I. Introduction and Overview

1. My name is Karen Wrege. I have been asked to opine on the feasibility and wisdom of implementing a combinatorial bidding option for certain licenses the Federal Communications Commission ("FCC" or "Commission") will soon be auctioning in the 700 MHz band.

2. As described below, and as I have stated in this docket and elsewhere, I believe that a combinatorial bidding option, under certain conditions, offers both the FCC as auctioneer and participating bidders certain benefits. However, for purposes of the upcoming 700 MHz auction, I do not believe that the FCC has adequately considered and studied, with the benefit of academic and public input and testing, the myriad implementation issues associated with rolling out this option. This is especially true if the FCC offers the option in a partial and peculiar manner, allowing participants an opportunity to combine certain arbitrarily selected, but not all, licenses. As a result, given the state of development, I believe the FCC should instead auction the available frequencies using the tried-and-true simultaneous multiple round ("SMR") system it has used to complete 70 auctions.

II. Qualifications

3. I have more than 15 years of experience implementing high-stakes public and private electronic auctions, and over 20 years of experience in managing software development projects. Currently, I am president and chief executive officer of Wrege

Associates, a consulting firm I founded in 2005, and through which I have provided consulting services to international licensing authorities, private and non-profit businesses, and auction bidders in the United States and abroad. I have advised bidders in the MAS, AWS and 1.4 GHz auctions conducted by the FCC, and have recently developed an auction simulation platform and bidder analytical tool for spectrum auctions in the US and abroad.

4. I began my career in auction design and implementation in the early 1990s with the Resolution Trust Corporation. In 1994, I began serving as manager of the FCC's spectrum auction software team, and continued in that role for more than a decade, where I oversaw the complete software development and implementation of scores of electronic auctions. My management of the project required converting economic game theory for SMR auctions to a real-world, functioning electronic auction model that had never been implemented before. While at the FCC, I also created an operations research and development lab for the agency, where alternative auction designs were developed and studied for operational feasibility. The systems that I helped to develop and manage processed hundreds of thousands of bids from thousands of bidders, and resulted in the flawless completion of 70 auctions.

5. With respect to combinatorial bidding for licenses in the 700 MHz band in particular, I managed the development of three separate FCC production auction systems and one software simulator. First, in 2000, I developed a simple combinatorial system to auction the 700 MHz spectrum in 2 blocks of 6 licenses each. In 2002, I developed a stand-alone system for a combinatorial auction of 700 MHz spectrum that was more complex and flexible than the system in 2000, using optimization software to solve a

complex winner determination problem. Most recently, I developed the Integrated Spectrum Auction System ("ISAS"),[1] which gave the FCC the ability to conduct SMR auctions or combinatorial auctions, but was not designed to combine the two formats in a single auction.

6. I have filed comments regarding combinatorial bidding in two FCC proceedings. In September 2006, as part of the proceeding involving the auction of 1.4 GHz licenses, Paul Milgrom, the Shirley and Leonard Ely Professor of Humanities and Sciences in the Economics Department at Stanford University, and I filed comments in support of developing a simplified version of combinatorial bidding.[2] We focused on the relatively small 1.4 GHz auction as a test case in preparation for the higher profile 700 MHz auction. The 1.4 GHz auction had only 64 licenses and 9 bidders and we opined that, under these circumstances, the Commission could implement a simple combinatorial auction design for all of the licenses. Dr. Milgrom and I also filed comments and reply comments in the instant proceeding,[3] encouraging the FCC to consider combinatorial bidding, but cautioning the Commission to provide complete information and allow for

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[1] The Integrated Spectrum Auction System was developed to replace the two existing separate auction systems, one that supported SMR auctions and one that supported SMR with package bidding auctions. The ISAS software includes an auction set-up module that allows the system administrator to choose *either* the SMR or SMR with package bidding design for an auction.

[2] Comments of Paul Milgrom & Karen Wrege, AU Docket No. 06-104 (filed Sept. 11, 2006).

[3] Comments of Paul Milgrom & Karen Wrege, WT Docket No. 06-150 (filed Sept. 20, 2006) ("Milgrom/Wrege 700 MHz Comments"); Reply Comments of Paul Milgrom & Karen Wrege, WT Docket No. 06-150 (filed Oct. 20, 2006).

public input on the auction design well in advance of the public notice announcing the auction.[4]

III. Combinatorial Bidding in 700 MHz Auction

7. In the Further Notice of Proposed Rulemaking ("FNRPM") released in this docket on April 27, 2007,[5] the Commission set forth a number of alternative band plans for 700 MHz frequencies, and sought comment on each. The FCC appears to be considering offering combinatorial bidding for one or two blocks in three of these band plans to facilitate nationwide aggregation. Specifically:

- In what the FCC refers to in the FNPRM as the "first proposal for reconfiguration of the upper 700 MHz band," the Commission seeks comment on whether to auction the C block REAG licenses on a combinatorial basis, "which would further facilitate the aggregation of licenses at auction to create a nationwide footprint."[6]
- In what the FCC refers to in the FNRPM as "the first additional proposal based on modified guard bands," the Commission seeks comment on, "whether one or both of the C and D Blocks should be auctioned on a combinatorial basis in order to

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[4] Milgrom/Wrege 700 MHz Comments at 5 ("Because bidders will need time to fully understand a new combinatorial auction design, it is important to begin the discussion in this proceeding and not wait for the public notice announcing the auction.")
[5] *In the Matter of Serv. Rules for the 698-746, 747-762, & 777-792 Bands*, WT Docket No. 06-150, Report & Order and Further Notice of Proposed Rulemaking, FCC 07-72 (rel. Apr. 27, 2007) ("FNRPM").
[6] *Id.* 191.

further facilitate the aggregation of a nationwide footprint, and if so, how this should be accomplished." [7]

- In what the FCC refers to in the FNRPM as the "second additional proposal based on modified guard bands," the Commission states that it "would allow for combinatorial bidding on the C Block to facilitate the ability of entities to secure a national license," and seeks comment on this proposal." [8]

8. Based on my experience with auction theory and design, I do not believe that it is feasible or wise for the FCC to proceed with combinatorial bidding for this auction, especially in the manner the FNPRM appears to contemplate. The FNPRM appears to propose a hybrid of combinatorial and SMR auctions in a single auction event. Based on my auction design experience, and as I explain below, I believe it would be difficult and unwise to implement such a system. In addition, based on my experience representing auction participants, and as I also explain below, I believe that even bidders who would otherwise support a combinatorial approach will find the hybrid proposal complicated to utilize. Furthermore, the hybrid combinatorial approach, with combinatorial bidding for some licenses but not for others, is inappropriate for this auction because it applies a different set of auction bidding rules to licenses that are substitutes for bidders.

9. As a preliminary matter, I am unclear whether the Commission is considering allowing unlimited combinations of the licenses in the block(s) it proposed in the FNPRM, or whether it intends to limit bidding to nationwide package(s). In the AWS and the 1.4 GHz auctions, where regional licenses were auctioned, bidders clearly had business plans that supported obtaining multiple regions. The most recent example of

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[7] *Id.* 202.
[8] *Id.* 206.

this was in the 1.4 GHz auction (Auction 69), in which two bidders won all of the licenses in the auction, splitting the country in half geographically. Limiting the combinatorial approach to 1 or 2 blocks and limiting it further to only nationwide aggregations is tantamount to a set-aside for one new entrant or incumbent nationwide provider.

A. Implementation Issues

10. From an implementation perspective, the first problem with the hybrid, part-combinatorial, part-SMR auction design is that although the Commission has studied the potential effects of combinatorial bidding in the 700 MHz spectrum for years, this approach is completely different from anything that has ever been publicly discussed, studied, or developed in connection with the FCC spectrum auction program. As a result, the Commission has not had the benefit of public forums to address the important implementation issues that have been continually brought up over the last seven years by the industry, and the industry has not had the benefit of sufficient time to study the implications of this new approach.

11. In the past, when implementing a new auction design and corresponding software system, the FCC has developed the design in partnership with the academic community and industry through various conferences, outreach seminars in Washington and around the country at industry trade shows, and public notices.[9] In addition, the FCC has developed its own simulation tools to allow the Commission to test multiple auction designs using robotic bidders, and has published the results. The FCC has also engaged

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[9] *See* "Auction Papers, Experiments and Studies," Wireless Telecommunications Bureau, <http://wireless.fcc.gov/auctions/default.htm?job=papers_studies>.

independent software and economic testers to test and validate both the auction design and software system, and again published the results.[10]

12. Implementing this hybrid auction design without following the full range of customary best practices of public testing and education introduces significant risk to the success of the auction. I agree with the view expressed by U.S. Cellular in this docket that "[t]here are numerous material issues which remain unresolved and a serious public debate beyond the typical notice procedures is essential to address such complex and potentially controversial matters."[11] For example, just last spring in Auction 65 for air-to-ground services, the FCC implemented a modification to its auction system to implement a new design where three mutually exclusive band plans were up for bid at the same time, and only the winning band plan would be licensed. During the course of that auction, the FCC had to suspend bidding for several days to resolve software bugs.[12] The suspension in the air-to-ground auction was an unprecedented event; never before in the FCC's long successful auction history did it take so long to resume a suspended auction. By contrast, the AWS auction that followed was run using the unmodified SMR auction methodology and system and ran flawlessly for 161 rounds.

13. This air-to-ground auction experience does not bode well for the 700 MHz auction, given that the FCC had over a year from the adoption date of the Report & Order

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[10] *Id.*

[11] (*Ex Parte*) Letter from George Y. Wheeler to Marlene H. Dortch, Secretary, FCC (Mar. 27, 2007) (filed in WT Docket No. 06-150).

[12] See (Ex Parte) Letter from Charles C. Townsend, President & CEO of Aloha Partners, LP to Marlene H. Dortch, Secretary, FCC (Mar. 16, 2007) (filed in WT Docket No. 06-150). Mr. Townsend highlighted this problem as a reason not to proceed with combinatorial bidding in the 700 MHz auction.

outlining the alternate band plans to implement Auction 65.[13] By contrast, the FCC is legally required to begin the 700 MHz auction in just over half a year from now, and the software changes needed here are considerably more extensive than those that were needed to conduct Auction 65. Unlike Auction 65, the Commission will be hard-pressed to use its existing ISAS auction software to implement the hybrid approach because of the volume and complexity of the necessary changes, but will have to start from scratch. As I explain below, modifying the ISAS auction software to implement the hybrid approach would require a complete overhaul of the key internal processing systems used for calculations as well as the User Interface.

14. Before the software can begin to be modified, however, there are many issues regarding the specifics of the hybrid auction design that must be fleshed out. A key issue is the bidding language that will be used. In the ISAS combinatorial system, the FCC uses an exclusive OR bidding language ("XOR"), whereby bidders may win at most one of their considered bids. Clearly this will not work in a hybrid combinatorial auction design where bidders could desire licenses in both the combinatorial block(s) and the other blocks. Another issue is the life of a bid, whether it is considered only in the round in which it is submitted or whether the system will look back across previous rounds. Again, in the ISAS combinatorial auction, bids are considered forever, but in the ISAS non-combinatorial auction, non-provisionally winning bids are only considered in the round in which they are placed. Reconciling these two approaches for determining the set of considered bids in a hybrid auction is a complex issue that impacts bidders and

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[13] In the Matter of Amendment of Part 22 of the Commission's Rules to Benefit the Consumers of Air-Ground Telecommunications Servs., Report & Order and Notice of Proposed Rulemaking, 20 FCC Rcd 4402 (2005).

their bidding strategies. Without conducting a full range of simulated auctions with the economic testing community and the industry it is impossible for me to predict the various scenarios under which this hybrid approach could be problematic for the FCC and bidders.

15. Once these matters, and many others that relate to the specific auction rules, are addressed and resolved, the FCC's ISAS software will need major changes. At a minimum, the following core components and calculations will require modification: round activity calculations; maximum dollar exposure calculations; minimum acceptable bid calculations; the winner determination and pricing optimization problems; and the round results file formats. The scope of these changes to ISAS is tantamount to building an entirely new auction system. In fact, I have found that in many software development situations, it actually takes less time and is less risky to create new software for modified auction designs than to try to retrofit a new design into an existing platform. This explains why the Commission has already developed three separate combinatorial auction systems for the 700 MHz auction as the auction design evolved. At this point, the Commission will have at most six months to explain the proposed rules, seek comment, finalize the rules, modify the software, conduct economic and software testing, conduct seminars and release the new results file formats so that bidders may modify their own analysis tools and test them to prepare for the auction. This is simply infeasible.

B. Bidder Issues

16. Based on my experience representing bidders in FCC auctions, I also believe that a hybrid part-combinatorial, part-SMR auction for the remaining 700 MHz spectrum will also significantly complicate bidder participation in the auction.

17. The primary benefit of combinatorial bidding is that it reduces exposure risk for bidders that wish to aggregate licenses. Such bidders realize this risk when they win some but not all of the licenses they need. In its combinatorial implementation of ISAS, the FCC established rules that eliminated exposure by allowing bidders to create all-or-nothing packages of licenses. In the hybrid approach, however, bidders will be required to manage exposure between bands that offer combinatorial bidding, where the exposure risk is eliminated, and those that do not, where the exposure risk remains. This resulting exposure risk could be mitigated to a certain extent by implementing package bid withdrawals or by not considering bids from previous rounds for the package bids, but each of those alternatives adds complexity to the auction design.

18. We do not yet know which of the band plans presented in the FNPRM will be implemented for the 700 MHz auction, but each of the proposals includes licenses that are likely to be seen by bidders as both complements and substitutes.[14] The hybrid combinatorial approach with combinatorial bidding for some licenses but not others would apply different auction bidding rules to licenses that may be substitutes for bidders. The disparity in bidding rules will make it difficult for bidders to manage eligibility effectively, limit their ability to move from one block to another, and as mentioned above, create exposure problems – the very thing combinatorial auctions are designed to eliminate. Again, I agree with the views of U.S. Cellular in this docket that a "mix of auction formats" – the hybrid proposal where some licenses are available through

[14] Auction 66 is a perfect example of the same conditions where bidders were able to substitute less expensive smaller licenses for larger more expensive blocks of spectrum over the course of the auction.

combinatorial bidding while others are available only through the SMR auction – "will create confusion and a real exposure problem."[15]

19. A full combinatorial or a full non-combinatorial auction format – rather than a hybrid approach – would do a much better job of dealing with licenses that are substitutes. In a full combinatorial auction, bidders could create packages of any substitutable licenses, and in a full non-combinatorial auction, bidders could freely switch between any substitutes. Simply said, the hybrid approach complicates a bidder's ability to express preferences for substitutable licenses.

20. While the many years of study of combinatorial auctions at the FCC has shown there are benefits to conducting combinatorial auctions, the Commission has almost no real experience successfully implementing combinatorial auctions. Thus far, the FCC has only implemented combinatorial bidding in one auction. In September 2003, the FCC held Auction 51 for Regional Narrowband PCS licenses. The auction had only two bidders, lasted for two rounds and closed with only one bid being placed.

IV. Conclusion

21. I believe the FCC should continue to study combinatorial auction designs, both simple and complex, but in the case of the 700 MHz band, I do not believe that there is enough time for the FCC to implement the hybrid combinatorial approach, in part because, there is not enough time for bidders to participate meaningfully in a comment process about a new auction design when there are so many other important issues to consider. Not completing the full public research and development process with the new

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[15] (*Ex Parte*) Letter from George Y. Wheeler to Marlene H. Dortch, Secretary, FCC (Mar. 27, 2007) (filed in WT Docket No. 06-150).

hybrid combinatorial approach will invariably overlook important issues and therefore be susceptible to gaming and subject to inefficiencies. Making major software changes on such a tight schedule is almost certain to introduce operational issues, making it far too risky for an auction of spectrum that is as important as the 700 MHz band. If the Commission had enough time to implement combinatorial bidding before the statutory deadline, it should spend that time studying and testing the proposals that Greg Rosston,[16] Paul Milgrom and I set forth early in this proceeding. Given the lack of public consultation and the limited time before the auction must begin, the FCC should not implement a hybrid combinatorial auction design for the 700 MHz band. I believe the FCC should implement its tested, tried-and-true simultaneous multiple round auction design and use its familiar and reliable software for this important event.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Karen M. Wrege

Executed May 23, 2007

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[16] See (Ex Parte) Letter from Ruth Milkman and Kathleen Wallman to Marlene H. Dortch, Secretary, FCC (Feb. 5, 2007) (filed in WT Docket No. 06-150).